

A Database Publication

ATARI USER

Vol. 2 No. 11

March 1987

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this
issue



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Don't miss this launchpad for all that's new in Atari computing

ATARI
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SHOW

10am-6pm Friday, April 24
10am-6pm Saturday, April 25
10am-4pm Sunday, April 26

**Champagne Suite, Novotel,
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MORE arcade games
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MORE adventures

On display for the first time in the UK will be new Atari products that are set to rock the micro world.

Star of the show will be Atari's IBM PC compatible offering a radically new design at a price that will revolutionise the PC marketplace. There too will be the latest models in the ST range - the Mega ST workstations. Plus the remarkable Atari Laser printer, the machine that has broken the price barrier in desktop publishing.

All of these - along with breakthroughs for the ever popular 8-bit range and hundreds of new software packages - will be on display at the April Atari Computer Show.

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Atari Show launch for new PC model

65XE makes its bow

WITHIN 48 hours of Atari UK's new 8 bit level entry machine taking its bow, it attracted advance orders for 25,000 units.

Known as the 65XE, it was shipped from America to make its spectacular sales debut at the London Toy Fair. In its basic form it is a games machine but can be upgraded to a 128000 byte portable computer.

Offered in a grey case like the ST range, the 65XE is to be sold for £189.95, the price including a joystick and a games cartridge.

Interface

However it does not have a built-in cassette as previous models from the 5400s indicated, but simply a cassette interface.

The upgrade kit, which costs £40, adds a keyboard, lightpen and cassette recorder to convert it into a true 8 bit machine.

Atari had previously planned to replace the successful 2600/7000 games machine over here with the 7600/7000.

However officials at Atari UK persuaded their American cousins that the British market would benefit from a machine that could run computers - not just cartridges as in the case of the 7600.

"We feel that this offers the users over here the best of both worlds", said an Atari spokesman.

It has now been confirmed that the April Atari Computer Show has been selected as the UK launch point for the company's 16M PC compatible machines.

At the same time it was made official that the event has been chosen for the official unveiling of the new laboratory grade laser printer and the latest in the ST range - the Mega ST workstations.

Company officials had previously considered releasing all these breakthroughs at the Whodunnit Computer Show.

However it was subsequently decided to hold over until the April event, so providing Atari users with the opportunity to see the machines first.

We felt we owed it to our faithful army of Atari fans out there", said a company spokesman.

This will transform the event into a never to be forgotten occasion.

Such is the importance now being placed on the show that chairman Jack Tramiel and a party of Vips will be going across the Atlantic to attend.

But even long before it was known that there would be major launches at the show, demand from exhibitors had been at an all time high.

And a large number of these are reported to be preparing to release further new products.

While most companies involved would not divulge details before the show, Atari UK managed to unearth several who would.

On the ST front, Precision Software is to introduce a multi file relational database known as Superbase. For astart, it is designed for use with Gem and is likely to carry a price tag of around £160.

Highsoft also has a new package for the ST in the form



Alan Bates, Atari President, will be there

of a basic compiler. Cambridge with Microsoft Basic, the price has yet to be decided.

Not will it be seen to ever looked in fact it would appear that on the software front new titles for this range will overshadow those for the ST.

In-depth manuals plan

FULL operations manuals - many in excess of 100 pages - are now to be offered with the Atari 8 bit range of packages from MicroPhase.

The in depth publications are already the hallmark of the giant American software house's 16 bit simulations.

Make a move to strengthen its position as the market leader MicroPhase will now issue the notoriously re-sentenced booklets with its lower priced packages - including those costing just £5.95.

The glossy covered works contain not only detailed operational instructions but also historical background information, notes from the designer and advice on further reading material on the subject.

We pride ourselves on

Real Flat Software has three new games - Asteroid, Death Racers and Forbidden Island - all costing £7.95 on tape, £9.95 on disc.

And on the budget title scene, Tynesoft will be offering a range under its new Micro-Value label at prices as low as £1.

This show is shaping up to be the most significant event ever in the Atari calendar, says David Minkin, head of engineers, Database Software.

The Atari Computer Show takes place at the Novotel, Hammersmith, London from April 24 to 26.

Doors open at 10am each day and close at 8pm on Friday and Saturday, 4pm Sunday.

A money saving advance ticket order form can be found on Page 53 of this issue of Atari User.

authentic and accurate simulations that provide not just a few hours of enjoyment but hundreds. says Stewart Bell, managing director of Micro Phase in the UK.

So that every player can get the most out of our simulations, we've decided to issue manuals with all our products.



The 6500 system includes the computer, keyboard and light pen.



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back. Ten years ago he brought
me back. Back and machine
back.

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"My correspondence course is run on a very personal basis". Going told Allen Uter "Each lesson is tailored to the needs of the individual because no two people learn at the same speed."

"I sell only one design at a time - priced £2 - because this allows customers to know what to follow the course to save up and buy each stage when they can afford it."

I've also excluded a pest-control service because when I was programming and got stuck I had no one to turn to for help.

I deal with patients in private, home and commercial settings and encourage them to feel at ease. I have no idea on what to expect in this phase.

All benefits of the advertising should appear in relatively brief articles already present in popular

Atari keeps eye on Parliament

A NEWS publication which monitors Parliament's activities in relation to health is being produced with the aid of an Asahi ROBOT.

Healthcare: Parliamentary Monitor appears fortnightly while Parliament sits

It aims to provide a non-partisan account of all health care development work in Mississippi and all the rest.

The population is distributed to companies and individuals with a specific interest in health-care—health authority managers, health planning offices, community health councils, pharmaceutical companies, physicians, medical equipment manufacturers and suppliers, and medical academics.

In covered balconies the local
situation, particularly the

1988 and 1989, govern
ment and Private Members
Bills, and raised concerns
regarding various other issues.

Atari User: "The most important criteria for me when I was evaluating different money systems, was to get the right balance between ease and effectiveness."

The best value for money was definitely supplied by the Atari ST. It is important for me to upgrade the system shortly and I am already looking into different desktop publishing packages as well as laser jet printers.

"I've found the ST indispensable in the task of putting the newsletter together. As the program for using *MetaMerge*, *MetaView*, and *MetaMerge*, and find them extremely easy to use."



New option

ATARI & its users have a new physical option available to them - the Phoenix One From Britannia Software.

Its design incorporates a pistol grip trigger action, with the joystick placed on top of the device to permit equal dexterity by both left and right handed users. Price £12.95.

Adventure
for all

AMERICAN publisher Sprologix Simulations has converted *Phantasm* for the Atari II bit machines and *Phantasm II* for the XT.

Pharoos is a multiple role-playing game where a party of up to six characters is recruited to attempt the tale of Odino for nine days that will end the land of the Dark Lord.

Players can create an elf who is a wizard, a dwarf who is a fighter, or combine in creative ways the eight races and six classes of characters which include humans, elves, dwarves, thieves, warriors, and wizards.

More than 40 types of monsters appear the player in a total of 10 dungeons.

Phantom II takes players to the tale of Perseus, a plucky hero of beauty and magic, lured by evil powers from an enchanted pit controlled by Medusa, the Gorgon.

Flowers gather a group of adventurers to aid in the island war against the wasps. One is invaded, escape dangerous and destroy the dangerous.

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1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Zone	April	January 1977
A	250	250
B	220	220
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Abstract *Background:* The purpose of this study was to determine the prevalence of self-reported depression and anxiety among a sample of young adults in the United States. *Methods:* Data were obtained from the 2007 National Survey of Adolescent Health, a nationally representative survey of young adults aged 18–24 years. *Results:* The prevalence of self-reported depression was 10.3% and the prevalence of self-reported anxiety was 12.1%. *Conclusions:* The prevalence of self-reported depression and anxiety among young adults in the United States is high. *Keywords:* Depression, Anxiety, Prevalence, Young adults.

Toll: 0797 244333

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Year	1990	1995	2000
1990	1990	1995	2000



The parting of the ways...

FOLLOWING an overwhelming response from our readers after the recent survey in *Atari User*, it has been decided that the magazine will say goodbye to its younger cousin - *Atari ST User* - which from now on will be published as a magazine in its own right.

Starting with the April issues, *Atari User* will return to being wholly aimed at owners of 8 bit Atari computers. There will be lots of room for more utilities, games listings and tutorial series.

Atari ST User will at least double in size and this extra space will allow us to support ST users better than ever before. Forthcoming

features include detailed reviews of all the latest software and hardware and a major new series on Gem programming which will include details of everything from dialogs to windows.

Publishing two Atari magazines every month will allow us to give much greater coverage to all that's happening in the rapidly expanding world of Atari.

Whether you own an 8 bit, ST or both, we're sure that you will welcome both magazines and we look forward to your comments and suggestions on ways you would like to see them develop in the future.

● To take out an annual subscription to *Atari User* or *Atari ST User* please use the subscription form on Page 53. If you are already a subscriber to *Atari User* and wish to transfer your subscription to *Atari ST User*, please write (giving the name and address to which we send the magazine) to: Subscriptions Dept, Atari User, Europa House, 65 Chester Road, Hazel Grove, Stockport SK7 5WY.

Talk your Atari into action

QURE then triggers longer blasts by adding a voice-operated key button to your favorite joystick. Activate your friends with a talking head, whose key works when you speak into a microphone.

Or keep track of intention from any source – fads, watching movies, TV speakers or even plays and/or games. Or just train your computer to do tasks when you wish. This method can do it all.

Since you use Tigger a lot by touch or by following gently across the roads, it could find a less frivolous use in Pictam-type systems to help severely disabled people with curtains, answer the door or switch the TV on and off.

It can also be easily adapted to screen signals other than sound but more about that later.

You can't connect a retrophone directly to the pyralisk part for two main reasons. Firstly, the output from aroast makes is very small – a few thousandths of a volt at best – and the computer isn't sensitive enough to detect it. Secondly, the signal is AC, which the internal hardware can't handle.

We need to simplify the rules a great deal and convert it into a EC aligned

Part 9 of LEN GOLDING's series on using your Atari to control devices

which switches directly between IV and V. Then it can be connected to any of the five output input lines on your master card.

Figure 1 shows the result. It's not the simplest possible design, but it is very versatile and costs only a few pence more than a rudimentary sound switch.

Stage 1 is a fairly conventional AC amplifier which converts the microphone output into a respectable voltage level of 10V.

Stage 2 is less conventional, but several an ordinary quad 2 input NOR gate chip. Two of the gates are wired as a monostable, which converts brief

input: pattern with output pattern long enough for the controller to detect

The remaining two gates form a Schmidt trigger, which creates a clean on/off transition at the output. Stage 2 is in fact a self-contained analogue-to-digital switch which behaves in the following way:

The output point A is normally held above 2 V_{cc} by the action of V_{BE} and R₂. In this state the output is held at +V_{BE} (about 0.7 V).

When a brief negative-going peak is observed from CB, point A falls below -2.25° and the cathode then switches very rapidly to 0° (Fig. 2). The observed rapid return occurs because the

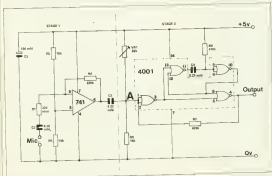


Figure 1. Concept diagram for the second proposed model

relative distance, or a pin dropping on a hard surface close to the microphone.

To give your joystick a more consistent feel, join both ends of the extension cable. Cut the cable to remove a section from the middle leaving you with suitable lengths - about an inch to from each end of the cable is best.

Strip back the black outer sheath to expose the nine internal wires and join each wire back to its partner, matching the colours. Solder the joints and insulate all except the two figures 8, 7 and 6, then connect these three pins to the terminal block as shown in Figure 11.

If you want to double the joystick's own fire button, leave the socket and of wire it disconnected.

Plug your joystick into the extension-cable, load up a game and set the gadget's sensitivity low enough to eliminate spurious triggering. Then shoot, slip or wheel to blast away.

There's scope here for some simple hand-making gadgetry if you can stand

the racket. You may need to position the make fairly carefully, so that it doesn't pick up sound from the TV speaker or other inappropriate sources.

If you would like the output pulse to last longer than one tenth of a second, there are two options. You can increase the value of R6 (10 megohms will give a delay of around three seconds) or you can build a delay-loop into your software as shown in Program 8.

Program 11 is the 'talking head'. I mentioned earlier Lines 10 to 55 put a simple face shape on screen, then lines 60 and 70 use the gadget's output to modify addresses 708 and 710, which control the mouth's action.

This gives the effect of lip opening and closing. Of it's a primitive program - but you could use the same principle for a much more impressive multi-coloured display, say in graphics mode 7.

Remember though that inexpensive infra-red need not be high frequen-

cies. The gadget will pick up most movements without difficulty, but it may not detect jerks unless you're very close.

The gadget can easily be modified to accept other types of input - for example you can trigger it by touching the microphone input, even if there is no mike connected.

It's easy to make a touch-sensitive switch by attaching a wire, or metal pad (for example Magna-type HY708), to the terminal pin behind the mounting hole.

Many types of sensor - such as thermistors, pressure transducers and moisture detectors - change state slowly so can't be connected directly to the serial input lines.

Others (like photoresistors) can switch on and off so rapidly that the trigger pulse may be long gone by the time your computer gets around to looking for it. This gadget can be used as an interface for both types of signal.

To modify the board, leave out all the amplifier components and fit a two-way terminal block in place of R6.

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TW@ is another action-packed game involving head-to-head competition against the computer or a friend.

The game is a little misleading — it's not a true simulator since the view is from above, but that shouldn't detract from what is a fairly good game of the genre.

Your task is to race your BMX bike round a track, avoiding various obstacles. There are seven different courses, each more difficult than the last, and with less time allowed to complete

each race.

A steady hand and a level head are needed here. The courses can be learnt gradually over a period of time, so even the worst games player sees a marked improvement as he plays.

Richard Darling, author of the Commodore hit original, has also incorporated an action replay feature, complete with slow motion, which is unique for a game of this type.

The graphics aren't bad, but I've seen better. The courses are appropriately laid out, and the "Burner" as they're called, slows you down on the way up and helps you speed up and turn on the way down.

There are ramps and rough ground to traverse, and obstacles which keep you getting back on the



course if you wander off line.

As the view is from above, the lines appear quite small, but if you crash the rider flies over the handlebars and bike and rider are revealed quite realistically.

The sound, written by David Whiteley, is catchy and pleasant, and includes a short fanfare at the end of each round. Sound effects include pedalling and thrills as you crash.

If you're a BMX fanatic, or prefer racing to spacing, then this game is right up your street — and it's cheap enough to buy without leaving too great a dent in your pocket money.

Bob Anthony

Sound	4
Graphics	3
Playability	4
Value for money	3
Overall	4

Fine quartet

Program: Shoot 'Em Up
Price: £9.99
Supplier: US Gold (UK) Ltd
Address: Ray, Mottershead
 Birmingham B1 5AE
 Tel: 021 354 3385

COMPILATION packages abound these days, and that is generally good news for both software houses (who get extra mileage from selling games), and Joe Public (who gets the benefit of buying games at very much reduced prices).

Critics might say that they are an excuse for publishing out otherwise unsaleable games on the back of one big sale.

While that may well be true in some instances, it is definitely not so with this latest offering from US Gold.

The four games in the package are Super Zeaxos, Blue Max 2001, Fort Apocalypse and Desquere instructions in compilations

are sometimes a little skimpy, but US Gold has provided a comprehensive and well detailed set for all four.

Super Zeaxos is a fair representation of an old arcade favourite. You fly over enemy fortresses and through tunnels in glorious 3D, dodging force fields, shooting, landing and battling with fire-breathing dragons along the way. Graphics and sound are both satisfactory, and although the game is a little slow it remains very playable.

Blue Max 2001 (wasn't it Dawson for its title, there being many similarities in the gameplay and appearance).

Again you must bomb or shoot anything that does or doesn't move, progressing to the next level after a precision bomb run or a special target.

While Fort Apocalypse is set out to a certain extent



by blocky graphics, the game itself is excellent and thoroughly addictive.

Your task is to release stranded prisoners in your helicopter, dodging and shooting floating mines, tanks and submarines, ultimately blasting the very heart of the fortress.

Desquere is by my word the best of the collection, and perhaps the best all-out blast I have seen for the Atari.

The graphics are superb, the sound excellent and the action smooth, fast and furious.

Your main task is attacked by aliens and you

must gather in your comrades to the relative safety of the base.

Again from the aliens you'll have to watch out for molecular acid clouds, proton lightning bolts and erupting volcanoes. This game is sheer chase and destruction from start to finish.

All in all, Shoot 'Em Up lives up to its name.

Mark Reynolds

Sound	4
Graphics	4
Playability	4
Value for money	4
Overall	4

Rambo rampage

Program: *Gun Law*
Price: £1.99 (suggested)
Supplier: Microcomputer & PC
Paul Green, London EC2A 4JH
Tel: 01 377 4888

The action begins on the Gun Law track starts off. Four minutes of bloody alien attacks have taken their toll.

However anyone buying this game and expecting to see stars is going to be in for a surprise and possibly a disappointment.

There you are in your smart blue army uniform at the bottom of the screen, brandishing your machine gun ready to deal out the wonders from outer space. But hold on, those are soldiers shooting at you. In fact they are identical to you in every respect, but for the fact they are wearing green

instead of blue. Whether happened to the aliens? I certainly never saw any.

Anyway, the aim is to run up the screen with the background scrolling vertically downwards, fending off your attackers.

Various objects can be used as cover from enemy fire, such as trees, fences, rocks and buildings.

Due to some program ming mistakes, guns, ponds and small puddles will also stop spawning bullets.

Once you reach the end of the view line away from you most registers a flashing electric fence and then go through the same obstacle in the next zone. Naturally your enemies are better armed and there are more bullets to contend with. It goes on until you reach the fifth and final level.

The graphics in Gun Law are adequate, though they

do have some oddities.

For example, an alien walking in front of your Rambo character is rendered out and it had gone behind.

The animation of the figures is minimal and movement is limited to up, down, left and right. The game would have been improved by the inclusion of diagonal movement.

With the high standards attained by many of the budget games around these days I had expected a little

more from this game.

It has nothing to get together recommend it but neither does it have any serious faults.

Gun Law is a no frills budget shoot 'em up and as such and represents fair value at under £2.

Paul Mills

Sound	4
Graphics	3
Playability	3
Value for money	3
Overall	3



Bandits ahead

Program: *Spitfire 40*
Price: £9.99 (suggested) £12.95 (hard)
Supplier: Microsoft Music
*and Music, 28 Wimpole
 Drive, London EC2A 4PH*
Tel: 01 377 4888

"SCRAMBLE! Scramble! Bandits coming out of the sun at one o'clock."

"Yes all yours, Sergeant, and try not to panic in the long thin time."

Now that's the sort of gung he atmosphere I was hoping would be generated by this Spitfire flight and combat simulation programme. Alas, it was not to be.

While Spitfire 40 is quite a good little simulation it didn't quite have the zip and excitement I had anticipated. Perhaps it was because I felt that much better use could have been made of the sound potential of the Alan

The main screen is, as you would expect, a view straight ahead from your seat in the cockpit.

Not much to see, really, except miles of green grass and miles of the wild blue yonder.

Pressing the speaker toggles you in and from the instrument screen. This shows fuel gauge, winged indicator, artificial horizon, VSI, engine rev indicator, slip and turn indicator, carburettor, altimeter reader and g-rod indicator.

A further screen provides a map of South East England showing your position and three areas which can be examined in more detail by a zoom feature.

You control the Spitfire using either a combination of joystick and keyboard or keyboard only.

Spitfire 40 lets you choose a practice flying session or to go straight into combat

units, more simulation, getting the plane off the ground and keeping it up, there is pretty easy.

In combat mode a number of enemy craft will appear, sometimes ahead, sometimes in your rear view mirror.

You give chase and manoeuvre your Spitfire to fire the enemy up in your sights.

When you fire you lose the ret-sit-tat-tat of your right Browning machine guns and see the bullets spraying out from below both sides of your cockpit.

If the enemy craft is hit it

immediately but silently disintegrates and disappears.

Response to joystick and keyboard is a fraction slow but not so much that it spoils the gameplay.

Not quite the raffish show I'd hoped for, old bean, but golly fair none theless. Cheers luvvies!

Bob Chappell

Sound	4
Graphics	3
Playability	3
Value for money	4
Overall	3



Fight to survive

Franchise: *Food Max*
Price: \$750K
Supplier: *Costco Wholesale*
Beaumont Business Gas
Beaumont Clinic
Penney's Open 24/7
Tel: 02080 98020

The screen shots on the inlay and back looked promising and I had high hopes for Red Wax. After 20 minutes loading my enthusiasm was beginning to wane slightly, but thankfully it loaded first time.

The storyline revolves around the survivors of Barry's Global War who have colonized the moon.

They become a little concerned on discovering that the sun is about to explode, as they fit the reason with a few anti-gravity ribs, catapult it from the solar system, and log down for 1,280 years—give or take a few—before the sun has cooled down.

Things start off well enough for the fugitives, but unfortunately a band of renegade South Lewis Indians is out in order to sabotage the power plants.

It is your job to get on your laser reticulator, find the mines they have planted and deactivate them.

Having disabled the main fission process to the engineering level, turn on the back up nuclear cooling systems and shut down the main power plants.

Lastly you must descend to the information samples and wake up nine crew members. You have an aerial view of the whole network.

Controlling the bike with the joystick is simple. The only controls, apart from left and right, are acceleration and deceleration, achieved by pressing and releasing the fire button.

They must attend sessions with teachers and staff.

with the angiotensin II receptor antagonist losartan (Losartan sodium, Novartis, Basel, Switzerland).

I found the game very pleasing visually, with smooth movement and detailed graphics.

There are complaints, however, in particular the bottom two-thirds of the screen is taken up by the motorcycle console which shows speed, revs, fuel level and the state of post shields.

There is also a small portion where it only just what to do next, and various of these that leads to

The console looks very pretty but actually can hold a lot more in the same

Despite the Red Max's use of the best budget camera I've seen

Design	1
Graphics	1
Flexibility	1
Value for money	1
Overall	1

Trickier Willie

Program Jet Set Plus
Price \$7.99 (Suggested \$12.99)
(tax)
Supplier Forecast List 2
Advance Industrial Group
Shelton, Tenn 38274
800-443-4333
Tel. 660-444-0011

JIT Set Weekly was originally created for the Spectrum and remains one of the all-time greats of computer games.

Tymsoft have now produced it under license for the Atari, nearly three years after it was originally published by Software Products.

The story so far: Master Willy has resigned from his adventures and thrown a party to celebrate. However, Maria, his housekeeper, won't allow him into bed until he has gone around the mansion and collected all the silver.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

The house and grounds, down stairways, up trees, swinging over slides on ropes, making jumps that require great precision and avoiding the many and various creatures that are out to get her.

The game remains faithful to the layout of the original, but unfortunately loses in the translation.

The graphics on the Spectrum are bright, lively and have a great deal of humour and charm.

Typeset seems to have made the conversion too heavily. With the Atari's font-generation graphics capabilities I had expected a lot of color and fast moving graphics.

I got neither, the graphs being lock-down, some the slugs and the movement not clear.

Township has some stuff

nately improved one part of the game – the music is superb. It can be switched off if necessary, but I really enjoyed it and kept it on.

If the vessel is swamped or you are left in total silence with none of the little things and soundings that denote jumping, feeling or movement.

No great loss perhaps, but I do feel they would have added to the atmosphere in its own right, the game is already a little sad and more like to

[illegible]

The coordination and economy required to clear the gardens and plantings is considerable and the game will still appeal to those who like the sort of maintenance challenge.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Depend	0
Dropouts	0
Flexibility	0
Value for money	0
Overall	0

**Now's the
time to
link your
Atari
to the big
wide world!**



Join the international association and use your Mac!
(Join the telephone) to meet the world... logging on to
Microsoft, Telecomm, Data, Finance, Microsoft and the ever-
growing number of bulletin boards,
both in the UK and USA. Help yourself
to hundreds of free teleconfer-
ences... and more, much more!



Yes, I'm able to read all about it in *Beltech*. My 7-year-old son's read magazine *Teen* like *Entertainment* is up to the magazine's site to all the readers and content. Software now available for the Atari 1000.

■ Here's a special offer for readers of **ENR**. For every subscription ordered using the form below, we will give you free registration to Micro Job worth \$5.

If you would like to take advantage of this offer, don't forget to visit us!

ORDER FORM

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10. The following table shows the number of people who attended the concert in each age group. The total number of people who attended the concert was 1,200.

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Downloaded from <http://ajph.org/> on November 11, 2014

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100

[illegible]

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4. Conclusion	4. Conclusion
5. References	5. References

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Journal of Internal Medicine 247: 395–402

THE UNIVERSITY OF CHICAGO

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The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated fax machine. The cheapest will cost you £1,600 (the Whisper), the cheapest £2,850 (the Clearfax). You will also need a separate telephone line, costing £180 to install, plus £400 a year rental. That's a total outlay over the full year of a minimum of £2,850 (all prices include VAT).

Or you could do what most and more successful users are doing – use your fax to double as a letter machine. And just use your ordinary telephone.

How do I turn my Atari into a Telex machine?

All you need is a modern and appropriate communications software (see the advertising event in this issue), a telephone and a subscription to *Microsoft*.

Relix is just one of a growing number of services available to music users on AOL.com. With it, you can also read the news as it happens, go one shopping, create your own record user group, send e-messages and electronic mail right around the world, download free software, programs directly into your movie... and much more.

But why use Tokens?

Beckette is a standard means of instant communication between businessmen. Today there are 150,000 Telsis machines in use in Britain - and more than 2 million worldwide. They need it to dramatically speed up business communications - just as quick as using the phone but far more efficient, because you have a hard copy of every communication for your records.

But there's a big bonus you get when you use MicroLink: *you* feel that the conventional way does not offer.

When Microsoft you don't have to be in your office to send or receive text messages. You can just sit easily use your computer at home (or even a portable). So now you can check whether there are any text messages waiting for you – anywhere, anytime. Have a look for your business.

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By Brillig

JUDGING by the number of letters received on the subject, one of the most frequently played adventures seems to be *The Payoff*, so it's not surprising that I should get more requests for assistance with this than with most others.

Conrad Wilson of Llangollen knows that you have to change the bit in the drill (but cannot) find the exact combination of words to do it.

He is also having some difficulty getting the local and warden who has the key to the car.

On the same adventure, Desmond Dede from West Lothian has almost finished but cannot help triggering the alarm when he drills through the door of the vault.

GLITCH OF THE MONTH

Brian Parsons from the Isle of Wight has spotted a cracking glitch in, of all things, *Infocom's Spellbreaker*. To get the cube from the female's hut, you're supposed to collapse the hut by using the Catty spell.

However, if instead you CAST, FIGHT, OR CLIMB then EXTINGUISH CLIMB, the response begins "Attacking the cube first," which leaves you empty in possession of the cube. Well done Stewart that's a smasher.

The Payoff goes something like this

Perhaps you're trying to get in the wrong way. Desmond - have a look at the final hints.

Staying with *The Payoff*, Stewart Parsons from Coventry would like to know the exact words for getting through the window.

Stewart would also like some advice on how to get the cube from the Pass's nest in *Infocom's Spellbreaker* and how to get the alloy wheel in *Level 1's The Price of Magic*.

Finally, I. Chensell of Brighton is anxious to know how to solve a couple of problems with *Lords of Time* from Level 5.

He wants to know how to overcome the troublesome Pests and what to do in the colossal Hobadrome.

That's all the help for this month. Be sure my YTS games stay busy by keeping those letters rolling in. After all, they are being paid two ounces of Trol's gold a week and must have something to do besides plagiarise all my best spells. (Excusing adventuring!)



CLUES CORNER

Read these clues backwards if you're really stuck

THE PAYOFF

Want to use a wheel in the car?
TRY IT

Is the forest causing you to despair?

CLIMB DOWN THE NORTH SIDE OF

THE HOUSE UNTIL YOU CAN

How do you get the key to the car?

WALK BACK INTO THE HOUSE UNTIL YOU CAN

GO TO THE HOUSE UNTIL YOU CAN

Winning something costing you pain?

WALK INTO THE HOUSE UNTIL YOU CAN

SPELLBREAKER

Cube in the Pass's nest unobtainable?

TRY TO GO DOWN INTO THE PASS'S NEST

TRY TO GO DOWN INTO THE PASS'S NEST

PRICE OF MAGIC

Need the alloy wheel?

WALK DOWN THE NORTH SIDE OF

THE HOUSE UNTIL YOU CAN

LORDS OF TIME

Priceless Pests a pest?

WALK DOWN THE NORTH SIDE OF

THE HOUSE UNTIL YOU CAN

Winning something costing you pain?

WALK INTO THE HOUSE UNTIL YOU CAN

TRY TO GO DOWN INTO THE PASS'S NEST

CIO devices:

Easier file handling

In the last two parts of this series we looked at the theory behind data input and output on the 8-bit Atari, and at the operation of the Central Input/Output system. We've also listed out a sample program which uses CIO from machine code. Now it's time to look at the other facilities that CIO has to offer.

We have to far seen three CIO commands in use — Open, Put Text and Close — but we didn't go into any real depth on how they worked, or look at the other options available.

There are actually seven general commands available to CIO, plus a whole host of other device-specific instructions. The main commands are: Open, Get Text Record, Get Binary Record, Put Text Record, Put Binary Record, Status and Close.

They all have different uses with all different types of device, and not all are applicable for all devices. For example, it is nonsensical to try to Get data from a printer or Put data to a keyboard.

Some commands, most notably Open and Status, may need to operate very differently each time you call them.

With Open, for example, you may wish to create a new data file, open a long-gone archive container file for reading or even set up a channel to a

particular graphics screen.

If you remember from last time, we said that each channel has its own control block of data — known as an ICDB — which you must set up before calling the CIO system (See Figures 1 and 2).

Thus each time you use the Open command you need to set the relevant ICDBM byte to 3 and the buffer address (ICBA), and ICBAH) to point to the string containing the device name (such as "0:PRN" or "C:").

Part 3 of André Willey's series on the Atari's input/ output facilities

The buffer length pointer (ICBL) and ICBLH) is nicely used with Open, but in order to handle such a wide variety of functions the command does make full use of all the first two auxiliary data bytes.

ICAX) is used to specify the mode you want the device to adopt. If you

require input, for example, you would set 4 and output would be 8.

Some devices are capable of doing both at the same time, so the two are added together to give a value of 12 for use with an input/output file.

Sometimes a device is capable of much more — such as the screen handler, which must know what graphics mode you want, and the disc and RS232 handlers which both allow various special options. These facilities are selected by using both ICAX) and ICARD. A full list of the options is given in Figure 3.

If you examine the screen handler entries very carefully you will spot the answer to last month's puzzle — remember, the two numbers after the channel number in an OPEN statement are stored in ICAX) and ICARD — so all we had to do to simulate the GRAPHICS 7 command using CIO.

After Open, the next two CIO operations control the actual transfer of data to and from the channel, with two commands for input and two for output. Obviously, if you try to output to a channel you've only set up for reading you will get an error.

The two modes of input and output are Line (or Text) and Binary, both of which actually operate in a very similar manner.

A binary record is a block of channel data of fixed length, while a text record is a set of characters terminated by a Carriage Return byte (ASCII code 13). Text is normally dealt with in line mode — as lines of text with its strings, for example — whereas raw data is often presented as a binary record.

Command 8 will output a text string

Address	Label	Bytes	Description
ICDB + 8	ICID	1	Index into ICIDARR
ICDB + 1	ICIDW	1	Device number (eg. 0:1, 0:2)
ICDB + 2	ICIDM	1	Command type (eg. 0:1, 0:2)
ICDB + 3	ICSTA	1	Current Status of Device
ICDB + 4, 5	ICBAH	2	Buffer or Register address
ICDB + 6, 7	ICBLH	2	Address of Put-Byte routine (1-1)
ICDB + 8, 9	ICBLH	2	Buffer data length word returned
ICDB + 10	ICAX1	1	Auxiliary byte 1
ICDB + 11	ICAX2	1	Auxiliary byte 2
ICDB + 12	ICAX3	1	Auxiliary byte 3
ICDB + 13	ICAX4	1	Auxiliary byte 4
ICDB + 14	ICAX5	1	Auxiliary byte 5
ICDB + 15	ICAX6	1	Auxiliary byte 6

Figure 1 ICDB structure

ICDB Zero	0040	0000
ICDB One	0060	0040
ICDB Two	0080	0060
ICDB Three	00A0	0080
ICDB Four	00C0	00A0
ICDB Five	00E0	00C0
ICDB Six	0100	00E0
ICDB Seven	0120	0100

Figure 2 ICDB port addresses

Device	ICALL	Description/Notes	Device	ICALL	Description/Notes
Case "C"	4	Input data (Set ICALL2=128 for short IRG mode)	Keyboard	4	Read keyboard
	8	Output data (Set ICALL2=128 for short IRG mode)	Printer	8	Output (ICALL2=80 for always print on 80%, ICALL2=75 for normal, ICALL2=80 for wide)
Disc "D"	4	Open file for read	RS232	8	Concurrent read only *
	8	Open for write (overwrites any existing file)	"R"	8	Block output mode *
	12	Read/Write (start at first byte of old file)		8	Concurrent write mode *
	8	Append (add data to end of existing file)		12	Concurrent read/write mode *
	8	Read directory (read lines of directory info.)	Screen	8	Open for graphics output
Editor "E"	8	Screen output only	"G"	12	Open for graphics (AMD screen read mode)
	12	Keyboard input, screen output			(Set ICALL2 = Graphics mode number)
	12	Screen input and output (Picture key mode)			ICALL1 + 95 to enable a text window
					ICALL1 + 92 to prevent initial clear screen

* Some of the RS232 functions are very complex and are beyond the scope of this series. However, once enabled, approved I/O mode will prevent the use of any other peripheral I/O.

Figure 2: CP/M command parameters

starting at the address in ICBLAH and will keep reading characters until it comes to a carriage return.

Don't forget that while numbers which need to be stored in two bytes — such as the buffer address in ICBLAH and ICRAH — are always stored in the low-high format we talked about last time.

Command 8 is the input option for use with text strings. This will continue reading characters from the I/O channel and storing them in your buffer area (given by ICBLAH) until it finds a Carriage Return.

If you are worried that this might overflow your buffer area you can also specify a maximum number of characters by storing the size in the ICBLAH length count.

Command 11 is the Binary Put command, which will send a specific number of bytes to the file. The start of the buffer is given as ICBLAH and the length is given by ICBLAH.

Command 7 is the input command for binary data, which will input a given number of bytes of data and pass them into your buffer area. As with Binary Put, the buffer address is given as ICBLAH and the number of bytes to transfer by ICBLAH.

It is quite common practice to use Binary Get mode to read a whole file into memory and to then use CID will return the actual number of bytes which were transferred before the end of the file was reached. This number can be found in the length counter (ICBLAH) upon completion.

In addition, there is a special form of the Binary Put and Get commands. If you select a length of one — by placing a one in both ICBL1 and ICBLH — then a single byte of data will be transferred to or from the 8080's main A register.

No data is placed into or read from

```

00 00000000 00000000 00000000
01 00000000 0000 0000 0000 0000
02 0000 00000000 00000000
03 0000
04 00000000 00 00 00000000 00
05 0000 00 000000 00 00000000 00
06 00000000 0000 0000 0000 0000
07 0000
08 00000000 0000 0000 0000 0000
09 0000
0A 00000000 0000 0000 0000 0000
0B 0000
0C 00000000 0000 0000 0000 0000
0D 0000
0E 00000000 0000 0000 0000 0000
0F 0000
10 00000000 0000 0000 0000 0000
11 0000
12 00000000 0000 0000 0000 0000
13 0000
14 00000000 0000 0000 0000 0000
15 0000
16 00000000 0000 0000 0000 0000
17 0000
18 00000000 0000 0000 0000 0000
19 0000
1A 00000000 0000 0000 0000 0000
1B 0000
1C 00000000 0000 0000 0000 0000
1D 0000
1E 00000000 0000 0000 0000 0000
1F 0000
20 00000000 0000 0000 0000 0000
21 0000
22 00000000 0000 0000 0000 0000
23 0000
24 00000000 0000 0000 0000 0000
25 0000
26 00000000 0000 0000 0000 0000
27 0000
28 00000000 0000 0000 0000 0000
29 0000
2A 00000000 0000 0000 0000 0000
2B 0000
2C 00000000 0000 0000 0000 0000
2D 0000
2E 00000000 0000 0000 0000 0000
2F 0000
30 00000000 0000 0000 0000 0000
31 0000
32 00000000 0000 0000 0000 0000
33 0000
34 00000000 0000 0000 0000 0000
35 0000
36 00000000 0000 0000 0000 0000
37 0000
38 00000000 0000 0000 0000 0000
39 0000
3A 00000000 0000 0000 0000 0000
3B 0000
3C 00000000 0000 0000 0000 0000
3D 0000
3E 00000000 0000 0000 0000 0000
3F 0000
40 00000000 0000 0000 0000 0000
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43 0000
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46 00000000 0000 0000 0000 0000
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48 00000000 0000 0000 0000 0000
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4A 00000000 0000 0000 0000 0000
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57 0000
58 00000000 0000 0000 0000 0000
59 0000
5A 00000000 0000 0000 0000 0000
5B 0000
5C 00000000 0000 0000 0000 0000
5D 0000
5E 00000000 0000 0000 0000 0000
5F 0000
60 00000000 0000 0000 0000 0000
61 0000
62 00000000 0000 0000 0000 0000
63 0000
64 00000000 0000 0000 0000 0000
65 0000
66 00000000 0000 0000 0000 0000
67 0000
68 00000000 0000 0000 0000 0000
69 0000
6A 00000000 0000 0000 0000 0000
6B 0000
6C 00000000 0000 0000 0000 0000
6D 0000
6E 00000000 0000 0000 0000 0000
6F 0000
70 00000000 0000 0000 0000 0000
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87 0000
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8A 00000000 0000 0000 0000 0000
8B 0000
8C 00000000 0000 0000 0000 0000
8D 0000
8E 00000000 0000 0000 0000 0000
8F 0000
90 00000000 0000 0000 0000 0000
91 0000
92 00000000 0000 0000 0000 0000
93 0000
94 00000000 0000 0000 0000 0000
95 0000
96 00000000 0000 0000 0000 0000
97 0000
98 00000000 0000 0000 0000 0000
99 0000
9A 00000000 0000 0000 0000 0000
9B 0000
9C 00000000 0000 0000 0000 0000
9D 0000
9E 00000000 0000 0000 0000 0000
9F 0000

```

Program 1

the normal buffer area and it is up to you to store the A register correctly afterwards.

For some reason, only this special case of binary data transfer is supported by basic, making fast handling of large blocks of memory almost im-

```

0000 0000 0000 0000 0000 0000 0000 0000
0001 0000 0000 0000 0000 0000 0000 0000
0002 0000 0000 0000 0000 0000 0000 0000
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001F 0000 0000 0000 0000 0000 0000 0000
0020 0000 0000 0000 0000 0000 0000 0000
0021 0000 0000 0000 0000 0000 0000 0000
0022 0000 0000 0000 0000 0000 0000 0000
0023 0000 0000 0000 0000 0000 0000 0000
0024 0000 0000 0000 0000 0000 0000 0000
0025 0000 0000 0000 0000 0000 0000 0000
0026 0000 0000 0000 0000 0000 0000 0000
0027 0000 0000 0000 0000 0000 0000 0000
0028 0000 0000 0000 0000 0000 0000 0000
0029 0000 0000 0000 0000 0000 0000 0000
002A 0000 0000 0000 0000 0000 0000 0000
002B 0000 0000 0000 0000 0000 0000 0000
002C 0000 0000 0000 0000 0000 0000 0000
002D 0000 0000 0000 0000 0000 0000 0000
002E 0000 0000 0000 0000 0000 0000 0000
002F 0000 0000 0000 0000 0000 0000 0000
0030 0000 0000 0000 0000 0000 0000 0000
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003A 0000 0000 0000 0000 0000 0000 0000
003B 0000 0000 0000 0000 0000 0000 0000
003C 0000 0000 0000 0000 0000 0000 0000
003D 0000 0000 0000 0000 0000 0000 0000
003E 0000 0000 0000 0000 0000 0000 0000
003F 0000 0000 0000 0000 0000 0000 0000
0040 0000 0000 0000 0000 0000 0000 0000
0041 0000 0000 0000 0000 0000 0000 0000
0042 0000 0000 0000 0000 0000 0000 0000
0043 0000 0000 0000 0000 0000 0000 0000
0044 0000 0000 0000 0000 0000 0000 0000
0045 0000 0000 0000 0000 0000 0000 0000
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00A4 0000 0000 0000 0000 0000 0000 0000
00A5 0000 0000 0000 0000 0000 0000 0000
00A6 0000 0000 0000 0000 0000 0000 0000
00A7 0000 0000 0000 0000 0000 0000 0000
00A8 0000 0000 0000 0000 0000 0000 0000
00A9 0000 0000 0000 0000 0000 0000 0000
00AA 0000 0000 0000 0000 0000 0000 0000
00AB 0000 0000 0000 0000 0000 0000 0000
00AC 0000 0000 0000 0000 0000 0000 0000
00AD 0000 0000 0000 0000 0000 0000 0000
00AE 0000 0000 0000 0000 0000 0000 0000
00AF 0000 0000 0000 0000 0000 0000 0000
00B0 0000 0000 0000 0000 0000 0000 0000
00B1 0000 0000 0000 0000 0000 0000 0000
00B2 0000 0000 0000 0000 0000 0000 0000
00B3 0000 0000 0000 0000 0000 0000 0000
00B4 0000 0000 0000 0000 0000 0000 0000
00B5 0000 0000 0000 0000 0000 0000 0000
00B6 0000 0000 0000 0000 0000 0000 0000
00B7 0000 0000 0000 0000 0000 0000 0000
00B8 0000 0000 0000 0000 0000 0000 0000

```

IOCOM	Command	Notes	IOCOM	Command	Notes
1	Open	ICBAUX = Pointer to file open See Figure 81	36	Lock (L)	ICBAUX = Pointer to file open
5	Get Text	ICBAUX = Buffer address, ICBLUH = max length	38	Unlock (U)	ICBAUX = Pointer to file open
7	Get Binary	ICBAUX = Buffer address, ICBLUH = length If ICBLUH = 0, use single-byte A register mode	37	Post (P)	
9	Put Text	ICBAUX = Buffer address, ICBLUH = max length	39	Wait (W)	
11	Put Binary	ICBAUX = Buffer address, ICBLUH = length If ICBLUH = 0, use single byte A register mode	204	Format (F)	
12	Close	No parameters needed	17	Draws (D)	
13	Status	ICBAUX = Pointer to file open Results in ICSTA, plus optional DYSTAT (DATA)	18	Fill (F)	
32	Renewal (R)	ICBAUX = Pointer to file open tag "TO CLUNOW"	22	Special (S)	
33	Delete (D)	ICBAUX = Pointer to file open	24	Special (S)	
			26	Special (S)	
			28	Special (S)	
			40	Special (S)	

Figure 14. CIO command options

reason why you shouldn't place it into a string just as easily. The var address in 1636 and the parameters are as follows:

1. Address of machine code (1636)
2. The channel number (which you should have already opened for input or output)
3. The command number (1 for input, 11 for output - used by ICOM)
4. The buffer address in memory (ICBAUX)
5. The number of bytes to transfer (ICBLUH)

The USB routine will also return the actual number of bytes transferred. This might be different to the number you actually asked for if the file ended early or the disk was full.

There are just two more major commands to cover now, the first of these being the *Format* routine. When called, this will return a value to ICSTA for the device in question.

Most devices do little with this facility, but it is especially useful for the printer and the RS232 driver.

The constants, keyboard, screen handler and other simply return a token value of 1 to the ICSTA register. The disk system returns a simple set of values - 1 for normal file, 163 for locked file and 130 for file not found.

Both the printer and the RS232 driver return a block of four bytes of status data and store it in a special location called DYSTAT (Device Status) which is located at \$26A1746

(decimal). For more information on its contents, consult your RS232 manual.

Finally, we have the *Close* command, the simplest of them all. All you need do is place the value 12 into the ICOM register and call CIOV. No other parameters or data are needed.

Some drivers - such as the disc system and RS232 handler - also have their own unique commands. These are not normal CIO commands but are designed to handle the extra functions supported by that particular piece of hardware as follows:

For disc files: command 32 (close a filename), 33 is Delete file, 34 and 35 (Lock and Unlock files), 37 and 38 are Note and Post and 254 will format the disc.

Some of these do not need the channel to be previously opened as they contain the full filename themselves (pointed to by ICBAUX and ICBAH). The disc manual gives more information on these commands.

For the screen handler (2-3) you can use command 17 to draw a line and 18 to fill part of the screen - again more information is available in the manual.

The RS232 driver supports command 37 for sending an uncomplete block of data, 34 to control the hand shake line, 35 to alter the baud rate, word size and number of stop bits, 36 to change the Ascii translation mode and finally 40 to start the converter in IO mode.

Those of you who have used the CIO command from Pascal will by now have noticed that CIO is in fact a simple way of calling the CIO system.

The normal format of the CIO command is:

CIO *cmd, channel, lock, wait, flag*

The first parameter is the command number (listed in ICOMs). Next comes the channel number (which is converted to the ICCH number).

The two auxiliary data bytes are stored in ICAR1 and ICAR2 and the flagset is accessed by setting ICAL and ICBAH to point to it.

All the CIO systems we have been discussing are listed in full in Figure 14, but if you want to read up some more on the subject take a look at the *Operating System User's Manual*, which is part of Atari's Technical User Notes.

This month's IO question is: Why can't we use the very useful CIO command to access the Binary Put and Get functions from Basic rather than using a special machine code routine to do the job?

■ If it let you access the system in that way and doing what we've been looking at how to make up your own machine code device driver programs, how to patch them into the CIO system and what rules to follow to make them *almost* proof.

With you ever sat at your keyboard, gazing at a blank screen, and cursed the void like poets with which Basic runs your programs? I doubt if you're alone in this activity — most of us go through it from time to time.

The obvious solution is to write your programs in machine code instead of the hundreds of lines faster than Basic and is very much more flexible.

However, machine code is not as easily mastered as Basic and it requires considerable time and effort to create quite small systems of code — you only need to look at the 80 line machine code equivalent to the Basic PRINT statement last issue to see the problem.

Let's take a look at the reasons for the speed differences and at any possible solution.

Firstly, you must understand that the computer doesn't do as intended work in machine code: no matter what language you decide to write your programs in, so if you use machine code for the computer gives it the job in an easily digestible form and can then function that much faster.

Basic is itself a very sophisticated machine code program which takes your input in simple English-like words and converts them into machine code that the computer can understand.

However, because you will often be adding and deleting parts of your program, Basic only does this conversion when you finally RUN your new masterpiece.

Each line the computer comes to is translated into a machine code form and then executed; then the process starts all over again for the next line.

While this machine-code craft is very fast, the conversion process takes time — and this is where the speed problem lies.

The ideal situation would be to write your program in a straightforward English-like language and then have the computer convert the whole lot into machine code at once.

The result would execute almost as

A compiler's the if you want fast

quickly as it would if you had written it in machine code in the first place because no more complex converter code need be carried out at run time; it's there as access to this pipe-dream? Luckily, there are both a number of these types of languages — known as Compilers because they compile your program into its machine code equivalent.

These include C, which is also very popular on the ST range; Pascal, Fortran, Lisp and many others.

These are all languages which were designed with much larger machines

one of the simplest but nonetheless rapid powerful alternatives to Basic.

The language known as a special type of cartridge known as a Super-Cartridge, which is a way of packing 10s of information into an 8K slot in memory using a technique called bank switching.

It consists of four related segments — the Editor, Monitor, Compiler and Library.

The Editor is rather like a word processor and is in itself very flexible. It is here that you create your Action! programs in the same way as you

ANDRÉ WILLEY considers Action! a fine second language for the advanced Basic programmer

in mind and can thus be quite unwieldy to use on an 8K slot device such as the Acti. They also tend to produce much larger files than a pure machine code author would generate.

A few years ago, a Californian firm called Optimised Systems Software decided to produce a compiler written especially for the 8 to Acti.

Unlike Fortran, Lisp and the others this would have the advantage of being similar in style to Basic but should also be able to create very fast compact machine code.

That's Action! was born.

Written by Claude Paries, Action! is the result of many months of hard work and is now widely regarded as

would type a letter into Acti/Writer.

There are no line numbers and no LIST command — you simply use the cursor keys to move about your whole program at will.

Full search and replace options are available, and any line may be up to 128 characters long — and each line for the whole screen can be scrolled across the normal 40 column screen.

Two windows containing completely separate programs are available and you may cut and paste between them with ease.

Once your program is complete you can return to the Monitor, which allows you to control the system. From here you can select the various options and compile and/or run programs.

The Compiler itself is extremely fast — often compiling programs many hundreds of lines long in less than a second.

This is the business and of the language and it turns your program text into very compact machine code ready for the 8002 to execute. This code may then be run or saved to disc for later use.

The final module, the Library

Benchmark	Basic	Basic XL	Action!
1	3.37	1.08	0.62
2	0.96	0.62	0.026
3	10.86	2.32	0.82
4	22.14	2.84	0.85
5	25.74	0.65	0.88
6	39.74	16.62	1.03
7	60.08	23.80	1.68
Average	35.07	9.43	0.84

Note: Benchmark 8 is not applicable since Action! does not support floating point.

time to calculate – and besides, most programs simply don't use them.

If you do need to use real numbers then a floating point package is available as a set of procedures to include within your programs.

Variables may be defined as BYTES (a value between 0 and 255), CHARs (two bytes, a value between 0 and 65535) and INT (two bytes again but also allowing for negative numbers –32768 to +32767).

It is also possible to set up arrays of any of these types (in indeed arrays of arrays). A string is defined as an array of characters – or an array of BYTES to be more accurate.

One of the most powerful features of the Action! language is that variables may be set to point to any location in memory.

You could, for example, define the variable BACKGROUND to be stored at memory location 710, the background colour register. This would be achieved very simply with:

BYTE BACKGROUND = 710

Programs are mainly made up of loops and conditional statements. These are the equivalent of Basic's

FOR, NEXT and IF...THEN commands, but you have a lot more flexibility in Action!

Loops may be controlled by the FOR, NEXT, WHILE and UNTIL statements. Conditional operations are likewise improved with the fundamental IF...THEN being supplemented by ELSE and ELSEIF. All of these control operators are demonstrated by Program 1.

It is interesting to note that there is no direct equivalent to the GOTO statement since all flow control is handled by loops and procedures. This encourages you to write good readable software.

If you compare the listing in Program 1 with a normal Basic program you will probably find the former much easier to read and understand, even though you have probably never used the language before.

The real power of Action! comes in everyday usage. Things which were complex and unwieldy in Basic can be accomplished with ease and speed in an environment which also encourages you to explore the system's potential in ways that Basic's PEEKs and POKEs prevent.

So powerful is the language that many commercial programs have been written in it – the obvious example being Norton's, the integrated word processor, database and communications package.

The Action! editor is so flexible and simple to use that it has been used as the core of a number of word processors.

In short, Action! is probably the nearest thing to a perfect programming environment that you are likely to find on the 68k Mac, though it is perhaps a little pricier for the pocket money programmer.

It is extremely fast, yet simple to learn and use for everyday application – though complete mastery will obviously take a little time.

In fact, it is probably a better second language for the advanced Basic programmer than machine code.

Action! Action!

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KYAN Pascal from Kyan Software gives you a full Pascal compiler and programming environment which could easily replace Basic as the main language on the 8-bit Atari.

This implementation of the famous language opens a wide new world to the Atari programmer. Complex data structures, recursion and a host of powerful commands provide you with capabilities Basic could never hope to match.

Pascal was written by Niklaus Wirth of the Institut fur Informatik in Zurich and was named after the 18th century math teacher Blaise Pascal.

It was first published in 1971 and then ran only on the Control Data 6600 series of computers, the most powerful of their day.

Jerome and Niklaus Wirth had as their goal the creation of a new structured and pure language that would be ideal to teach the concepts of programming as well as suitable for use in commercial software houses.

A structured language, Pascal allows the programmer to write his code in separate building blocks that can be linked together to accomplish a set task. Because of this approach, Pascal programs are also self-documenting.

Anyone knowledgeable in the lan-

A language that offers far more than bare Basic

JOHN ALSBROOKS reviews Kyan Pascal, a package that enables Atari users to greatly broaden their scope

considerably more powerful in that they allow the use of local variables and recursion.

Local variables have meaning only within a procedure or function, unlike Basic where all variables are global and so can be used anywhere in the code.

Recursion is the ability for a subroutines to call itself repeatedly—a valuable ability in many mathematical problems. Pascal excels at this as its

IF-THEN-ELSE-WHILE CASE REPEAT and FOR TO and upto to define variables and records beyond the character string options of Atari Basic; poor old Basic seems hopelessly limited.

As an example of Kyan Pascal, Program 1 is a tribute to the famous Towers of Hanoi puzzle.

What exactly do you get when you buy a copy of Kyan Pascal? First of all, you get a standard Pascal, not some unique dialect.

The means that any programs you write, with the exception of those that make use of sound or graphics, should run on any other Pascal system from, say, to mainframes.

Perhaps more importantly, the fact that Kyan has produced a package that conforms to the International Standard Organisation (ISO) standard for Pascal means that the vast amount of Pascal code already in existence can be used on your Atari with little or no modification.

You also get a complete Pascal environment, including compiler editor and macro assembler.

The editor is a very capable part of the package. All the standard cursor controls used in Basic still apply, along with the address of control codes to allow search and replace and end of page and full line manipulation.

If, however, you prefer Altirator or some other word processor, you may write your code on that system for compilation later.

At the heart of Kyan Pascal are the Pascal compiler and the BIOS assembler. The former takes the Pascal source code you write and produces assembly language source

```

program Hanoi; {input, output}
{liberally define the names of Hanoi routines. Hanoi starts
from 0 to 100}

var Hanoi: integer; {ALL variables will be defined}

procedure Hanoi (Height: integer; From, To, Spare: char); {Hanoi
routines defined}
{Recursive procedure for determining ways}
begin
  if Height = 1
  then
    Hanoi (From, To, Spare, From, To, Spare)
  else
    Hanoi (Height-1, From, Spare, To, Spare, From);
    Hanoi (Height-1, Spare, To, From, From, Spare);
  end;
end; Hanoi;

begin {Hanoi (input)}
  writeln ('How many disks are you going to start with? ');
  readln (Height);
  Hanoi (Height, 'A', 'C', 'B');
end. {Hanoi}

```

Program 1: Kyan Pascal listing

guage should be able to pick up a piece of code and understand what is going on relatively easily. And the computerisation of tasks reduces the likelihood of changes to one section of code adversely affecting another.

The two keys to Pascal's building block approach are procedures and functions. Both are roughly analogous to the subroutines in Atari Basic but are

even of local variables allows it to keep track of how deeply it is layered on itself.

By defining your own procedures and functions, you can tailor the language to your specific applications and at the same time build a library of functions and procedures for use in other projects.

When you have Pascal's powerful program control statements such as

Review

code. The assembler then takes the compiler output and produces an executable machine code file.

As a bonus, Ryan has added extensions to the compiler for both sound and graphics as well as random file access – capabilities not normally supported in other Pascals.

Nothing is perfect, but my only complaint is that the compiler is painfully slow. Programs I take 35 seconds to compile and replace the disc drive with and great fan is still blaring. Many running without it. Even load into the compiler takes over 25 seconds.

There is some magic, however! If you open a 1300H. You may load the compiler source code, standard library and so on into the compiler. Loading now takes less than three seconds and compile times are cut in half.

There is nothing wrong with the code the compiler produces through. Unlike some other versions of Pascal for micros which produce an interpreted language known as a p-code,

the Ryan package produces native 6803 machine code which runs extremely quickly – some five to ten times faster than Atari Basic.

If this increase isn't enough for you, Ryan has thoughtfully allowed the programmer to place assembly language routines right in the middle of his program. I found this feature a lot easier to use than fiddling about with the Assembler's other quirks.

A little bit less than 25% of ram is available for your programs and so far nothing I have written has come close to using up even half the available memory.

In the event that you need to write a program that would exceed the size of your computer's memory, you can chain two or more programs together and allow them to share variables between them as they execute.

The documentation that comes with Ryan Pascal is extremely good. The 274 page manual contains sections on using the package, assembly language programming and an excellent tutorial which leads you by the hand as

you explore the capabilities of Pascal. Additionally, there is a comprehensive index containing all too rare nowdays.

There is also an optional bi-monthly newsletter available from Ryan with articles on Pascal and assembler programming, handy procedures and functions to add to your own library, and a forum for users letters and questions.

Ryan Pascal comes on both sides of a single density, unprotected disc included with the compiler, editor and assembler and Disk 2.5 utility files and a few example Pascal programs (both source and object). It will run on all 5 1/4 bit Atari with 496 or more ram.

Ryan Pascal is a real Pascal. It puts you on a par with every other Pascal user and broadens your usage beyond Atari Basic. I highly recommend it.

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AUTO MOST CASSETTE from STEPHEN HILL

If you've ever wanted to create your own cassette or disk then this five liner could be the answer. It will create a file from a machine code program which will load on power up to create an auto run disk. You will have to change the DPM command in line 40 to

OPEN #18,128,"B:AUTORUN.DSK"

and change the second PUT command to

PUT #1 255

If you use tape cassettes, you must press the Start key as you turn the computer on so that the program will auto run.

List Breakdown

- 10 Set up screen
- 20 Inputs the start and end addresses and calculates the header bytes
- 30 The start and end addresses are converted in their high and low components
- 40 A save file is created and the header bytes are written to it
- 50 The contents of the memory block are written to the cassette or disk

10 REMARKS: A BASIC FILE IS MADE FOR THE
END OF THE PROGRAM. A LIST NUMBER IS
USED FOR THE FILE.

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USED FOR THE FILE.

Get it right!

10 REMARKS: A BASIC FILE IS MADE FOR THE

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THE COLOUR from MARK BLEY

THIS clever program produces 360 colours on the screen without using the usual Display List Interrupts. It changes colours to produce the large number displayed.

List Breakdown

- 10 Sets the screen to graphics mode 31 and starts the main loop
- 20 Shows the horizontal lines
- 30 Sets the colour of the vertical lines
- 40 Shows the vertical lines
- 50 Loops back to line 10 so that the action continues unaltered

10 REMARKS: A BASIC FILE IS MADE FOR THE
END OF THE PROGRAM. A LIST NUMBER IS
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Get it right!

10 REMARKS: A BASIC FILE IS MADE FOR THE

CONTROL LINE from RASLAN MCHMIT

THIS small routine adds a DCH line at the top of the screen using graphics but interrupts. Even if you don't know anything about DCH, you can easily incorporate Control Line in your own programs.

List Breakdown

- 10 Sets the DCH address and the low and high screen pointers
- 20 Reads the data for the DCH and POKES it in
- 30 Prints the text into the control line
- 40 Repeats the entire action screen pointer
- 50 DCH data

10 REMARKS: A BASIC FILE IS MADE FOR THE
END OF THE PROGRAM. A LIST NUMBER IS
USED FOR THE FILE.

Get it right!

10 REMARKS: A BASIC FILE IS MADE FOR THE

MAGIC NUMBERS from ROGER WILLIAMS

MAGIC squares have been of interest to mathematicians for centuries. The magical property of a magic square is that each column, row and diagonal adds up to the same number. This small program creates magic number squares quickly and easily.

List Breakdown

- 1 Inputs the number of rows in the square and initializes the main loop
- 2 Sets up the main loop for row by row calculation and calculates the elements on the diagonals of the square
- 3 Calculates column elements adjacent to the top left-bottom right diagonal
- 4 Calculates column elements adjacent to the top right-bottom left diagonal
- 5 Implements the main loop until

10 REMARKS: A BASIC FILE IS MADE FOR THE

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A WINNER ALL THE WAY...

I feel writing to let you and other Atari users know about my experience recently when I bought a new Atari setup as a result of a nice little war on the people fighting domestic, but enough to go to an Atari supplier and say 'lose of them, two of them, four of them, one of them' and so on! A very nice feeling indeed.

I decided to stick with 8 bits for a variety of reasons, so the order was for a 1200X, two disc drives, 1507 printer, 1229 plotter, a touch tablet and various other bits and bobs.

According to the advertisement in your magazine, this amounted to around £950 worth.

During an interview from a colleague who got a discount discount for each on a 50% printer, I ring round the four Atari suppliers within a reasonable range of Sharnford asking for a quote for the lot paid for with cash.

Two suppliers made feeble offers and one actually asked on the price by £20 and offered me a discount which brought the price back to the original. I don't know who they were looking?

However, there was a firm which made me an offer which I could not refuse.

So I came to pass that I got the lot. The day after I collected I sat down and started to use it. After about ten days one of the disc drives and the 1507 broke.

8 bit interfacing

I WOULD like to congratulate you on your article on interfacing the 8 bit Atari computers.

I am interested in interfacing with machines and require information on the bus connections on the 8X machines. Unfortunately I have been unable to find such data anywhere.

Do you know of any books which contain this information and where could I

down.

Personally I got in touch with the suppliers at once, with the result that they swapped them straight away no questions. They were friendly people to deal with and even apologise for my inconvenience - I was impressed.

I therefore nominate Computer of Loughborough for a Flat On The Hand award - J.E. Colley, Sharnford.

Technical queries

COULD you help me in trying to interface a non Atari printer to an 800XL?

The printer has a serial interface, but during my investigations it appears that the computer is sending out some data and expects a reply from the printer. When it doesn't get one it aborts with a broadcast error. What am I doing wrong?

Also, could you tell me the prices and a source of supply for the Atari technical manuals and plugs to fit the serial port. I have a fairly good knowledge of

computer systems and electronics previously - J. Cusnally, Radnor.

■ You need to use an RS232C interface to run your printer, the best being the Atari 850 module though you might find others that work. The Atari serial port is an internal standard running at 19,200 baud with its own protocol and command frame system.

You would need to be an expert machine code programmer to alter this and it would be far easier to use an 850 anyway.

Don't forget that you would also need to check your software is capable of sending to RS232C rather than the P printer port. SuperDing! does this but not AtariWriter for example.

Your own home grown software could be easily made to use either port, if desired.

Manual dexterity

I HAVE recently purchased an 800XL, but have found the manuals to be far from helpful - was searching Alford's, Patel and Brown's Atari Users book from my local library, when I discovered Atari User.

It is a very good magazine but I am having problems with the Santa's Guts game in the December 1989 issue. I am getting an error 3 at line 20130 but line 20130 seems to be correctly typed in. Can you help? - T.E. Pettit, Gungah.

■ Error 3 simply means that a number the computer has come across is outside the range it expects. In this case it is most likely that the variable CHBASE is the

guilty party, being either too large or too small.

After the error has occurred, try typing PRINT CHBASE, which should give a positive number no greater than 65535. In actual fact, it will be within a much smaller range.

Since CHBASE is colour-coded from another variable, RAMTOP, the problem might be in line 20058 which sets up RAMTOP in the first place. Don't forget to use Get if it's right to check the line before you run the program.

Loading errors

I HAVE been unsuccessful in loading Football Manager. I keep getting errors 140 and 141. I would be grateful if you could explain these errors and advise me on the correct way to solve them - P.H. Malton, Preston.

■ These are known as checksum errors and occur because data from the tape has been corrupted before it reaches the machine. This may be caused by a bad tape, or a fault in the recorder or the computer.

When a tape is recorded, each block of 128 characters is followed by a special error-detecting code which is basically a total of all the character numbers preceding it.

When loading the tape back in again, the computer does the same additions on the data bytes as they come in and checks the new value off against the one from the tape.

In much the same way as our Get it Right checksum, the computer can then tell if the data it has loaded was

the same as that originally issued. If any discrepancies occur, the computer will signal an error — normally a 140 or a 142 — and stop the load.

Exploring possibilities

FOR the past 12 months you can have had an Atari 800X. He has only used the machine for games up until now, only occasionally trying other features.

I never think it is time he explored the possibilities of the computer, the graphics and writing simple programs and so on.

If you could pass on any advice on that we would be very grateful. And if you have the name of any book we could buy which defines all the computer jargon that we would be very helpful.

Do you advise us to get a disk drive or stay with cassette tapes? — David and Michael Bann, Middlesbrough

■ For your age tape will suffice, though it is not as much faster and more reliable. If he takes to programming, he will very quickly find that waiting for a tape to load or save is very frustrating indeed.

We often run articles in *Atari User* helping new users to find their way around the machine and you will certainly find many of the features and series in our first issue useful. I believe they will order some from our book stores department?

Increasing word power

I RECENTLY wanted the Christmas Atari User show and whilst there I purchased an Atari 1020 disc machine printer and a copy of AtariWriter Plus for my 800X.

I had not used a word processing program before, but I found it really quite

ATARI USER Mailbag

WE welcome letters from readers — about your experiences using the Atari machine, about tips you would like to pass on to other users, and about what you would like to see in future issues.

The address to write to is

Mailbag Editor
Atari User
Europe House
88 Chester Road
Marsland Grove
Sloughpost SL7 5NY

easy to use. This letter is my first full length attempt at using the program and I have found it and the manual to be excellent. My only complaint is that there are only two point modes available — normal and double width.

Would it be possible to reverse some of the other word processing packages for the 40 column mode? — Mark Smith, Ashford, Kent

■ We have covered some other word processor packages in previous issues — notably the Superdial program in the March 1986 issue.

80 column cartridges

I WOULD greatly appreciate it if you could tell me if a way I could have 80 columns and with my Atari 800 for my word processor. I use my 800X for translations for the Ministry of Foreign Affairs of Greece.

I own an LK-80 Epson printer, 1020 disk drive and a Hercules Basic monitor. Although I also have Letter Perfect I find the cartridge-based word processor is extremely easy to use and a perfect partner for my work.

The only problem is that with 80 columns I have to preserve my documents and make corrections at the cost of valuable time. — JIM D. Mendenhall, Athens, Greece.

■ The answer is simple — you will soon be able to purchase an update of AtariWriter called AtariWriter 80, which will work with the new KEP 80 80 column module. Until then you're stuck with 40 columns I'm afraid.

Getting It Right!

I HAVE just purchased my first copy of Atari User. I have been looking for such a magazine for over a year and find it very informative.

Could you tell me how I can subscribe to it? Is it an obvious letter when typing in programs. At the moment the list of names don't mean a thing to me. — D.E. Scobee, Sacramento, Oregon

■ The instructions for our checklist program Get It Right! can be found in the August 1986 issue of Atari User which can be ordered using the form on Page 52.

Software compatibility

FIRST I would like to congratulate you on such a great magazine which I have been reading even though I put rid of my 800X some time ago.

I am now considering a 1050X. Could you please tell me if there are any compatibility problems with games for the 800X? — L.P. Arnold, Littlehampton, Sussex

■ The 1050X is really just an 800X with an extra 64K of memory available. This means that you should have no problems at all with software compatibility between the 81 and the 80, although you will still have the same problems as you had with the 81. In running some of the older software written for the 400 and 800 machines.

Keyboard inputting

I OWN an Atari 800X and wondered if cartridges for the 400 and 800 are compatible with it. Also could you tell me how to get input without the user having to press Return? — Neil Evans, Avon

■ You can use most 400800 cartridges with the 81 and 80 machines. But some badly written code will not work properly. This applies to much to tape and disk software as it does to cartridge, as it is always best to check first. That said, the vast majority of software works fine with the 81.

You can get input from the keyboard without requiring the user to press Return by adding the normal INPUT routine.

You modify the GET command which gets a single character, and build up from there. Don't forget to OPEN a channel to the keyboard first with

OPEN #1,AB,"R".

For example to get five characters from the keyboard and place them directly into a string use

```
10 OPEN #1,AB,"R"  
20 DIM TEXT(5) TEXT=""  
30 FOR CHAR=1 TO 5  
40 GET #1,TEXT  
50 TEXT=CHAR+TEXT  
60 NEXT CHAR
```

You could always send **RTTE** each time in case it was 199 — the code for Return — after which you could drop out of the loop since the user did not want to enter all five characters.

If you wanted the user to enter a number follow the same procedure and take the '9' off the string at the end — for example:

75 NUMBER = VAL(TEXT)

Silicon Dream & Jewels of Darkness

I *Brought* Rumbold's *Silicon Dreams* and *Jewels of Darkness* trilogy at the recent Atari User show, but can't get them working.

I have a 486 Atari 490 Plus/XT66 returns 180 and I have no trouble running other 486 software.

I can get to the menu and loading message in both discs, but after the load is finished I get a blank screen full of colorful garbage. I have returned the discs cartridge and all unnecessary peripherals.

In desperation I visited Rumbold and they were most helpful! They managed to run the discs on a 1090C and told me that they had them successfully tested on an expanded 480. Might my expansion board be faulty? — **REI Gilman, Tigra, Texas**

■ According to Rumbold's technical department, your problem lies with the fact that the program needs at least 544 to run.

Recorder diagnostics

RECENTLY my 1012 data recorder has not been logging my original computer games. I was wondering if a

YOUR HINTS AND TIPS

MEDMOT

PLEASE could anyone tell me how to get past the first screen of *Topspin Software's Medmot*?

I have tried bombing the city and landing in various places, but I always get killed. I am on the verge of throwing the disc out of the window! — **Brian, Belgium**

■ Help is at hand from Stan Park of London 8037, who has written to tell us that you have to land your craft on the pad between the two reds at *Xylos and Phalos*.

BOUNTY BOB

OVERLOAD the cannon in level 22. When the bar comes down, press F three more times to open a platform and press F again. An action screen will appear which will allow you to move to the level of your choice. — **Adam Marshall, Poona**

MERCENARY — THE SECOND CITY

IF you realised that the Chinese in *Mercenary* was a fair statement, then you might be wondering what

has happened to it in *The Second City*.

Four not, it hasn't gone at all, it's simply changed into a table, which can be found in the Pajaro briefing room. You can then use the ship to get the reaction fuel, which is above the entry craft — **Mark Wilson, Anglemey**

SPELLBOUND

I HAVE been playing *Spellbound* for days and days and I am absolutely stuck. Can anyone help me get past the tower the wall and the god room — **Andy Roberts, Little Sutton, South West**

Our thanks to Ken Higgins for the bumper bundle of tips.

MERCENARY

FIND the email and take it to the broken communications room in the underground complex near the bunker at 00-08.

You will be offered an interrogated craft and if you buy it a replacement will be arranged. There is a banner at the command at Rumbold #1-35 which may prove helpful.

RESCUE ON PRACULUS

IF an alien boards your ship, put the location on immediately, try to shoot the alien then turn all systems on.

Put fuel on your joystick. The ship's instruments will go haywire, but if you have enough power you might make it into space where the alien will die.

DROPZONE

PICK up all the men and deposit them at the base. Keep the last one and go and tell the enemy if you are killed, collect the men immediately because the aliens will then being killed by the resistance.

ZORRO

DO you keep getting lost in the caves? Always take the nearest exit after collecting the bags of money. When you get to the screen with three flashing rooms, go through the top left and push the device in the wire cage. Then go back, past the mine and up.

RC12 recorder would be compatible with my 80080?

— **Andrew Nelson, Bristol**

■ The RC12 will run with your 80080, certainly, but is this your problem? The paper may not lead for a number of reasons, the most likely being simple mismanagement of the record play head.

You may also find that cleaning the tape heads will improve the load reliability. If you take your recorder into your local dealer they will almost certainly be able to arrange for it to be serviced for you.

On the other hand, if you have played the cassette on a new tape you might have actually worn out the tape itself. This can happen, as the magnetic coating can

gradually wear off the backing material after hundreds of passes through the recorder.

Check them out on a known good tape recorder before getting with your local dealer for a new unit.

Keeping in touch

IN reading *Atari User* I am surprised in that a large number of advertisements do not have *Atari*, *MicroLink*, *Telecom Gold* or *help* anywhere.

To me, a fairly new user, I feel a software and hardware supplier who does not

use at least one of the new marketing way to communicate is doing a disservice to the micro computer business.

After all, the more users of the system, the more they will and that if they do not use the technology themselves they can't help others who people like me to use it?

I would often like to send for *Atari* via *Email* rather than by phone. The micro shops are also badly set up to market this product.

In Edinburgh I went round all the shops to see a demonstration of *MicroLink*, *Telecom Gold*, for a week on my third visit to

one shop before they had the system up and running. I would be interested to know if others feel as I do. — **Tom Stark, Edinburgh**

■ I am sent this message via MicroLink. Don't forget that as well as the usual Atari User postal address, we can be contacted on Microsoft, and Telecom Italia at 32 MAGGIO and on Postnet at 804860303.

And don't forget to thank your friend! For the attention of Atari User?

You can even send us your articles by faxed in to most of our regular contributors. The whole editorial team of Atari User use MicroLink to send complete features straight from our word processors at home into the office computers — which are linked direct to the typesetting machines.

We write everything on the ST and can thus send our material straight in for typesetting without a single mistake occurring — well, that's the theory, anyway.

Ribbon recycling

CDI apologises to anyone who writes to contact *AtariUser* about their printer ribbon recycling service. The adaption which we gave for them in the January 1987 issue of *Atari User* was incorrect. It is in fact a *Harvard Creative Systems* derivative (HCS) RIP.

Trak-ball or joystick?

I HAVE been a joystick addict for almost four years but as a Christmas present I was given a trak-ball which I prefer for most games.

The only problem is I do not know which games will run on trak ball mode. Could you give me a list of games which will?

Also, could you give me a short review which would allow me to read the trak-

ball from *Game*? — **Richard Bayles, Prestwick**

■ The only game which has a specific trakball mode — as opposed to those which can use the trakball in the joystick emulator mode — is *Muscle Command*. This is a shame, as such games as *Centipede* would be great in the trakball mode.

You can read the trakball in the same way as a joystick — by using the STICK and STRG commands. For the first joystick, STICK will return the direction value, and STRG will tell you if either of the buttons have been pressed.

If STRG returns a two then the button has been pressed and a one indicates no action.

You can work out the direction from the following table.

Value returned	Direction
54	UP
10	DOWN
11	LEFT
7	RIGHT
10	UPLEFT
6	UPRIGHT
8	DOWNLEFT
9	DOWRIGHT
15	NO MOVEMENT

Revised opinion

I HAVE a PRIME with version B Base and the guarantee has expired. I have been trying to buy a version C cartridge for some time without success. Could you please tell me when I might purchase one and the cost of it?

I have typed in Data how the January 1986 issue of *Atari User* and have used *Get It Right* to check it. Everything seems OK and a friend has also checked it for me, but I keep getting an error 8 at line 8 in this something to do with notation B Base?

Also, is there any way I can stop *Get It Right* from changing columns after typing using Control/F? The last line of characters also disappears too quickly for

me to change it. — **B D Sargent, Hastings**

■ For a few C cartridges try *Bliss Shop* or *Software Express* — they cost about £3-55.

The error 8 could well be caused by the Rev B problem, as DIM is one of the commands that shows up the bugs.

If you want to stop *Get It Right* from cycling through the colours, simply add the 101 as

W1 F08 77,0

The last line will not disappear if you haven't pressed any keys since the current programme was started — assuming you are using the updated August 1986 version, of course.

Loading cassettes

I HAVE recently bought a 1986 clear disc and an Atari 800. Is it possible to use a normal cassette recorder to load cassette games, or must I buy the special Atari disc recorder?

Also, could you tell me how to use the *COLOR* command in different graphics modes? I have used using the command in various modes, but it doesn't seem to display the number of colour bits loaded in the manual.

For example the manual says that mode 0 should have only one colour, but the *COLOR* command displays 16! How does the SET *COLOR* command work, as it is not very well explained in the manual?

Lastly, is it possible to have more than one graphics mode on the screen at the same time? — **Freddie Stevens, Worcester**

■ Firstly, you will indeed need an Atari recorder for use with your computer, or a special adapter which is nearly the same price anyway.

The *COLOR* and SET-*COLOR* commands in Atari Basic are quite powerful in mode 0 if you have only one

PEN PALS

Also, *Touppenak* Dave Irie, *Pendragon* S. Kate Almer 12877, *Athena*. Dave would like to hear from English pen pals. And Fred Swenson, 109 Allen Drive, Massachussetts, Canada. Also J27 is especially interested in hearing from Dutch Atari owners.

colour available, but 16 brightness levels. Thus, *COLOR* specifies the various brightness scales in this particular case.

For more information on making graphics modes and our section on Display List in the July to December 1986 issue.

Mercenary compendium

I AM interested in your special reader offer in the February 1987 *Atari User* for the complete *Mercenary* compendium, but the "too late for" bar stops *Atari User*.

The question is still interesting. Am I on my 4th *Atari 800* — something I would like to know before I order a compendium from you. — **Paul Rafter**

■ There are two volumes of *Mercenary* which come on the disc or tape. One is for 48k machines, and will therefore work fine on your 800, and one is an enhanced version which has extra features and operates in 64k.

MicroLink

ALL program listings in *Atari User* are now available for free downloading on MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available on Britain's national on-line database.



More **EXCLUSIVE** special offers - plus even **BIGGER** savings for Atari User subscribers!

Starblazer is "simply the best arcade game seen on any 52000 based machine" (Popular Computing Weekly)

It's the first ever game to feature stunning, fully animated vector graphics - and the first to include high-quality digitised sound - even messages from the ship's computer throughout your non-stop flight, are in digitised speech! Thrill to low-level flying, exhilarating defence and attack manoeuvres - it's all here, and much, much more!

The package includes a 64-page novel that sets the scene - and gives you vital information to help you succeed in your quest!

Now - the **COMPLETE** **Mercenary Compendium**

Here's all you need to get the best ounce of fun and excitement out of one of the most talked-about games of 1988. This is what the package contains:

Escape from Targ. A unique combination of flight simulation, adventure and arcade action. PLUS high speed 3D vector graphics! You crash-land on planet Targ's Central City and you have but one aim - to escape!

Targ Survival Kit. For help when you need it most. Includes maps of Central City and its subterranean complexes. And a novel - 'Interlude on Targ' - with more hints and tips.

The Second City. Thought you'd got away? Then load in this extra data set and think again! No hints or cheats this time - you're on your own!



Available for	Product	Format	RRP	Special module offer	YOUR SAVE	Offer including subscription	YOUR SAVE
Atari 520	Starblazer	Disk	£24.95	£21.95	£3.00	£27.95	£5.00
Atari 520XL*	Mercenary Compendium	Tape	£14.95	£10.95	£4.00	£17.95	£7.00
Atari 880XL*	Mercenary Compendium	Disk	£17.95	£14.95	£3.00	£19.95	£8.00
Atari 520	Mercenary Compendium	Disk	£24.95	£21.95	£3.00	£26.95	£8.00

To order turn to the Form on Page 53

***This is
the game
you'll want
to play . . .
and play . . .
and play . . .***

(And with 3,000+ questions,
it'll keep you happy for months!)



Trivial Pursuit

Only for the Atari 400/800XL, 130XE



At last — the world's most fashionable board game comes alive on your Atari. And it makes the most of the Atari's sound and graphics to take on an entirely new dimension. Now it can ask you to Name that Tune. Easy? Not when it's played backwards! Order through this special offer and you'll save £2 off the recommended retail price. Take out a subscription at the same time and save £5.

Suitable for	Product	Format	RRP	Special reader offer	YOUR SAVE	Offer including subscription	YOUR SAVE
Atari XL/XE	Trivial Pursuit	5.25" floppy	£14.95	£12.95	£2.00	£24.95	£5.00
Atari XL/XE	Trivial Pursuit	5.25" floppy	£19.95	£17.95	£2.00	£29.95	£5.00

To order turn to the Form on Page 53

Exploit the POWER of your Atari ST to the full, with...

Fast ST Basic is a totally new implementation of Basic for the Atari ST range. Running faster than almost all other languages, it supports true structured programming. And it has an easy-to-use word processor-like editor that makes full use of Gem. Up to 10 separate programs can be held in memory at once - each with its own editing window. There's even a built-in 68000 assembler to let you harness the power of your ST at machine level. And if you order through Atari User you'll save £10!

Look at the speed of Fast Basic compared to other popular Basic, using average PCW benchmarks.

FAST BASIC	1.0
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Fast ST Basic is compatible with all versions of the 520 and 1000 ST.

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9 useful functions that are ALWAYS available when you are using your Atari ST.

Back-Pack is a versatile desk accessory on rom. It sits in the background while other application programs are running, but can be called up and used at any time. It contains:

Scientific Calculator: Click on the numbers with the mouse or use the numeric keypad to access a large range of scientific functions.

Clock and Alarms: Tell the time with an analogue or digital display. Use the alarms to ring or display a dialogue box.

Diary: Open a page to check a whole day's events. Unique classification feature enables you to search for similar category events.

Notepad: Access up to 30 pages of notes, any of which can be transferred into the application.

Typewriter: Use it to send codes and short messages to the printer while working on other programs.

Printer Buffer: Put aside any amount of the ST's ram as a buffer, allowing long documents to be printed while the computer is still in use.

Address Book: Gives you simple and fast access to names, addresses and other details which can then be used in other programs.

Mini Clock: Place a digital clock anywhere on the desktop.

Random: Set aside any amount of ram as a Random, to act like an ultra fast disc drive. Speeds up any program that normally uses discs.



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graphic adventures are now
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An all time Classic game now carefully enhanced for the Atari computer. Help Willy to explore and collect fossils in his car (no museum).

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COMPUTER SOFTWARE

Vol. 2 No. 1

March 1987

Atari **ST** User



- Alert boxes: How to keep them under control
- ST graphics: Art and Film Director reviewed
- You, too, can make money from software

Atari desktop system bombshell



Atari's entry into the booming desktop publishing market here in the UK is being awaited with bated breath. For the announcement that the company is about to unveil a complete ST based system for around £2,000 has set alarm bells ringing for its rivals.

In particular, Apple — the company that is currently number one in the field — is running scared because even Macintosh based systems cost more than three times as much.

Yet DTP experts are hanging fire with their predictions of market share for Atari until further technical details are released.

One of these is Henry Budgett, editor of the Desktop Publisher newsletter. "There is not sufficient information at the moment for any accurate forecast to be made," he told Atari User. "But at that price — as long as it does the job — it has a huge potential in offices, schools and colleges."

The key to the degree of success Atari achieves lies in the performance of its new laser printer. Unlike Apple's LaserWriter, it is reported not to have a built-in processor. Instead it will be controlled by the 68000 chip in the ST.

While this is okay for people with STs, it probably means you won't be able to run the printer off other machines, says Henry Budgett.

The other possible problem is that as the control will be within the computer itself, it may limit the number of fonts supported. "We suspect this may be the case because they can't be stored in RAM," he says.

In fact this has led to some speculation that the new printer will only work effectively on an ST with at least two megabytes of memory.

But the news that observers are most anxious to hear from Atari is what programming language will be used, for this is what determines the power of the final product.

To date the leading package in this area has

been PostScript from Adobe. But this is expensive to license and would substantially increase the price of the Atari system. However a new Post Script clone has just surfaced which may provide the answer.

Control-C Software of Oregon is the company behind CS Pogo which is likely to be a target for Atari in its bid to have the most competitive desktop publishing packages around.

"All in all, if the Atari printer can produce the same end quality as the LaserWriter, then they are on to a winner," says Henry Budgett.

MEGA-ST AT THE SHOW

ALTHOUGH the new Mega-ST workstations are to be launched at next month's Atari Computer Show in London they will not go on sale immediately. Atari is not committing itself to a firm date for supplies to reach retailers' shelves, other than to say it will be during the second quarter of 1987.

Another major detail yet to be decided on is price — but company sources told Atari User this will definitely be announced at the Show, which starts at the Royal Albert Hall on April 24. The new product launch will also involve the Atari PC, available here midsummer at a price of under £300.

Atari sales manager Paul Walsh says there has been an excellent reaction from UK dealers to the new machines.

He told Atari User: "The trade has indicated its acceptance of the new lines and most major retailers and dealers have said 'they will stock them'."

"All the signs point to this being a very good year indeed for Atari."

GOING FOR THE HARD SELL

WITH additions to the ST range on the horizon Atari's aggressive new UK management team has been busy re-evaluating its approach to the market place. General manager Bob Greenwood is no exception, saying: "We're looking to expand all our channels of distribution as part of our programme for 1987."

First important step has been to tie up a deal under which Lightning Distribution will handle the entire ST range. And he says are expected to be announced shortly with other key distributors and leading high street retailers.

The agreement with Lightning is considered to

be a major breakthrough as only two years ago the firm refused to handle the ST because of unsatisfactory profit margins on offer at the time.

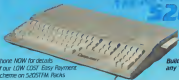
More acceptable margins, new aggressive management at Atari, and what Lightning director Lonnie Cohen calls "products for which we think there's a niche in the market" resulted in the change of mind.

Atari believes the improved ST range deserves the widest exposure possible and wants to see the machines sold through such outlets as Deans, WH Smith, Comet and Laskys — and possibly even Costa and Woolworths.

Mike Cowley reporting

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The 3.5-inch SuperDrive

NEW FROM FRONTIER

THREE powerful ST hard disc drives from American manufacturer Super Corporation are now being distributed in the UK by Frontier Software.

The 30Mb version - price £999.95 - is claimed to be quieter and faster than the equivalent Atari 800K drive, capturing 11 bytes of data to one in Atari's The Super 30Mb drive, price £999.95, and the 60Mb drive, price £1,999.95, are unique to the ST market in terms of their capacity and speed.

EASIER ANIMATION

MDW from Microdeal for the ST is the Gem-based Sprite Construction Set for easy design of images suitable for animation. Up to 16 colours can be used and full cut and paste facilities are available through a clipboard.

Simple animations can be tested for seconds from within the program. Price £19.95.

MS Print, also from Microdeal, prints any text file, allowing control over page size, all four margins, page numbers, headers, pitch and line spacing.

The program remembers the user's style preferences and printer type, permits utilisation of several styles and/or printers, and can save information to disc and recall it by name at a later stage. Price £19.95.

MARTIAL ARTS FOR THE ST

LATEST newcomer on the ST games scene is Nexus Productions, the company run by Beyond Software founders Bill Delaney and Clive Bailey, who are putting the finishing touches to two programs said to be launched in mid-March.

Graphs strategy and martial arts game Nexus, which has already a place in the Compendium 84

Top Five, has been converted for the ST. The other game, Hades Nebula, is a space shoot 'em up. Both programs are expected to retail for just under £25.

Contrary to reports elsewhere, Nexus Productions is not launching its animated American football simulation Super Sunday for the ST. "We have no plans for an ST version of Super Sunday as yet, though market conditions could cause a rethink later in the year", Bill Delaney told Alan User.

THE CHOICE FOR CAD/CAM

ATARI ST machines have been chosen as work stations for a training course in advanced CAD/CAM for college and polytechnic lecturers.

Run by Walsfield District College in conjunction with Sandwell College, Birmingham, it involves open learning and open technology techniques which the lecturers taking the course will eventually pass on to industry and to those training to enter industry.

The course consists of a series of open technology modules containing comprehensive notes, examples and case studies, with packet switch/circuit telephone connection to advanced word processing based computer aided engineering software.

Each lecturer taking the course will be supplied with an Atari ST, modem and other open technology materials and will communicate via British Telecom FDD with a Vax computer at Walsfield and a Prime computer at Birmingham.

The course fee is £2,500 but is 100 per cent recoverable from central government support grants when applications are processed before March 95.

ADVANCED COMMS PACK

ARDWAY Marketing has announced a new communications package for the ST. ST Desktop is described as "the most advanced communications software yet to be released on the ST".

The package supports internal Prestel and videotex simulations together with Asdu and Xmodem file transfer protocols. Additional features include an advanced menu-driven text parser, a dial directory and built-in file editor.

ST Desktop costs £44.95.

ATARI SEEKS THE CLUBS

ATARI is hoping to forge stronger links with its user clubs throughout the UK. The only problem is that it can't find all of them. For despite a recent request for groups to contact them with details of their activities the company is no nearer to getting its task of setting up a complete register.

"We would like details of club activities, who to contact and what equipment they are using", said a spokeswoman for the company.



-NOW YOU CAN WRITE- EXPERT SYSTEMS ON THE ST

CAMBRIDGE LISP

The complete Artificial Intelligence development environment for the ST



Cambridge LISP is unique and perhaps the most powerful language yet to become available for the ST. It combines an interpreter and compiler providing a complete environment for learning and using LISP, the language of Artificial Intelligence.

The interpreter makes it easy for you to learn LISP and to test and debug your programs as you go along. Once debugged, the compiler makes your programs run efficiently and quickly.

CAMBRIDGE LISP FEATURES

Integrated interpreter and compiler ▶ 16 Megabyte address space ▶ Rational Arithmetic ▶ Tag functions ▶ Integers of any size ▶ Floating point arithmetic ▶ Vectors ▶ Full tracing ▶ Large numbers of built-in functions ▶ Will run on a 580 ST but we recommend the use of 1 Mbyte of RAM

Cambridge LISP has the computing power of very much larger and expensive systems. It comes complete with a full interface to GEM functions, example programs and a comprehensive, step-by-step manual, all for **£149.95**.

THE C COMPILER- THE PROFESSIONALS USE

IBM COMPATIBLE C COMPILER FOR THE ST

Because GEM and TOS routines are written in C, using the C language is important to programmers who wish to use all the features and power of the ST. Lattice C is compatible with Lattice C compilers on the IBM-PC and other macros. This means structured, powerful and portable programming.

Lattice C is a full Kernighan and Ritchie implementation with floating point arithmetic, macros, powerful data types, separate compilation and a number of options to produce fast and compact code.

Lattice C includes a complete interface to GEM WDI and AES functions and comes with comprehensive libraries of UNIX and utility functions. All the features of the ST - icons, windows, graphics etc. can be used. Modules written in assembly or other high level languages can be linked into Lattice C programs.

Lattice C includes Menu+, screen editor and a comprehensive user manual, all for **£99.95**.

LATTICE C



**"I felt most comfortable
with the completeness
and speed of Lattice C."**

Acorn ST User July 1986

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HOW often have you wanted to quickly obtain a value from the user or use of your programs? Gen has a built-in routine to achieve this in the form of alert boxes, which can also be used to warn users of imminent actions.

An alert is the small box which appears in the centre of the screen with a warning sign, a short message and up to three buttons — you can see an example by picking up a file icon on the desktop and moving it on to the trash can.

Alerts are accessible from within any ST language including Asm Basic, even though it isn't mentioned in the manual. The string which defines the alert is the same in any language:

"Box Type[Actual Text]Button 1 | Button 2 | Button 3"

Box type is a number from zero to three — Figure 1 shows the choices available. A zero indicates that you don't want an icon to be displayed.

You must use a ! symbol every time you wish to start a new line of text — you can find it on the key next to the left hand shift key.

The text can be made up of a maximum 8 lines of 40 characters each. Up to three buttons can be defined and each one is separated from the next with a | symbol.

Therefore a string such as

"! ! This is an alert box | OK | Cancel"

BE ON YOUR ALERT!



will generate the alert box in Figure 2.

One more input is required by form_alert, the Gen routine which controls alert boxes — the number of the default button. The default button is the one which responds to the Return key as well as the mouse.

form_alert returns a number between 1 and 3 depending on which button was clicked on by the user. Your program must then act accordingly.

I have only given examples of how to define and display alert boxes in Asm Basic, C and Fort Basic, but the principles are the same for any ST language.

By
Andrew
Bennett

BOX PM ALERT SUBROUTINE

write ALERT(0) "This is an ! alert box" | OK | Cancel 3", 13

PRINT BOLT

Listing 1: Box basic



Figure 1: The three choices for icons



Figure 2: The alert box

to alert:

```

10  default%
20  default%
30  default%
40  default%
50  default%
60  default%
70  default%
80  default%
90  default%
100 default%
110 default%
120 default%
130 default%
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180 default%
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920 default%
930 default%
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```

Listing 3: C

```

10  REM ** ALERT: DEMO IN START BASIC **
20  REM **
30  REM **
40  REM **
50  REM **
60  REM **
70  REM **
80  REM **
90  REM **
100 REM **
110 REM **
120 REM **
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140 REM **
150 REM **
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850 REM **
860 REM **
870 REM **
880 REM **
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920 REM **
930 REM **
940 REM **
950 REM **
960 REM **
970 REM **
980 REM **
990 REM **
1000 REM **

```

Listing 4: Asm Basic

AVAILABLE NOW...

GFA BASIC

GFA BASIC'S STRUCTURE

- No line numbers, optional but lines may have labels which can be jumping points
- Subroutines, PROCEDURES with local variables
- Recursive Procedures with parameter passing
- IF-THEN ELSE ENDIF, WHILE/UNTIL, DO-LOOP and REPEAT/UNTIL structures fully supported

Graphic Commands

This access to LINE, CIRCLE, ARC, ELLIPSE, POLYFILL etc. Drawing, control line style and fill. DREFIL command for window clipping

Sound Commands

Control over voice, volume, note, octaves and duration. Ten preset waveforms and the mixing of the three voices. In white noise, can be defined

GEM facilities

- Control of screen target, with
- Control of window size, shape, position
- Mouse control, read position, click, status
- Open and Close windows, and titles

Operating System Functions

Functions may be called as INCH, XCOORD and YCOORD, with full passing of parameters

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And, if the GFA BASIC Interpreter isn't fast enough, then there's always the **GFA BASIC Compiler** to speed things up even more. The Compiler is fully compatible with GFA Interpreter and compiles 100% of commands with no programming restrictions.

BENCH MARKS

BASIC	Average time (seconds)
ST BASIC	2.4
FAST BASIC	1.8
GFA BASIC Interpreter	1.4
GFA BASIC Compiler	0.8

(Programs, disks using a 10MB ST)

GFA BASIC

Available from ST dealers
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Counting the cost of your software



We start this month with a query from Tim Harris from Cardiff regarding the high cost of ST software. Tim wants to know how some software can cost as little as £70.00 when other titles are as much as £150.

By way of explanation, let me split the cost of a piece of software into its component parts for you.

The cost of a piece of software, such as Tet Word or Starflight, starts with the price of the disc and duplication.

Although end users can expect to pay anything from £1.20 to £2.50 for a blank disc, software companies usually order in thousands and can therefore expect to pay as little as £1. Add 75p for duplication and tape protection and so far we have a total of £1.75.

Now comes the cost of printing the supporting package. Coloured labels cost around 50p each to produce in quantity, while the manual — colour cover, black and white, inside — will be about 50p. Add to this one payment to the author and we're up to about 75p for the complete manual.

The box or outside packaging costs will vary enormously depending on quantity, as we'll estimate this at approximately £1.50. So far we have a total cost of £4.10.

Now comes one of the largest costs — advertising. A full page, full colour advertisement in a magazine such as *Amiga ST User* costs around 2000 including VAT.

If the company advertises the product for three months in so many magazines, this runs to a total of £3,400, not including having the original artwork designed, which might easily cost £200.

Let's estimate that the total bill is £7950. Divide this by the number of units which the company hopes to sell, say 5000 for an average ST program, and we have an advertising bill of £1.59 for each unit.

On top of this, the programmer has to be paid so that he can continue to eat and to write more programs.

If he works full time for the software company over £20,000 a year and spends three months working on the program we can add another £1 to

each of our 5000 units. A program bought from a freelance programmer will cost around the same in capital.

Our running total is now £5.25, which doesn't include paying the office electricity and phone bills or the expense of taking stands at shows. For argument's sake, let's ignore these since the company will probably have more than one program title on sale at any one time.

Of the income from any program, around 30% goes to the software company, 30% to the distributor and 30% to the dealer. Most copies will be sold through distributors, so the software company can only expect to net 30% of the retail price. For a £20 program this means only £6 profit per program, with a total profit of £3,000 for 5000 units.

There isn't a lot of money on which to support staff and a business and this is the reason that most companies charge more than £20 for their

More display options

Many of you will already know that double clicking on an Amiga file on the desktop will allow you to display its contents on the screen. The item is displayed on screen at a time, with a More prompt being displayed at the end of each.

If you press Space, the ST displays the next page, but did you know that there are two other options available?

Before displays one line of text at a time and Control-C returns to the desktop.

If you know of any others, why not let me know?

programs. These companies feel that their product is worth £40 or £50 and in most cases they are right when you compare it with a similar program on the Apple Macintosh or IBM PC.

You must make the decision of whether to buy a program only after reading reviews and, if possible, having a demonstration at your local computer shop. I would be interested to hear your opinions on this subject, so why not write to me at the usual address.

● G.A. Kennings has written with some questions regarding the ST letter skip. He wants to know if it works automatically and how this will affect the performance of games written before the letter existed.

The letter works by automatically speeding up the ST's Line-A graphics routine which we used

Disk drive	£1.20
Duplication	75p
Disc label	£2.10
Manual	£2.70
Prototyping	£1.50
Advertising	£1.50
Programmer	£1.25
Total	£8.25

Figure 1 The costs of producing software

by Gem and most ST programs.

It will have little or no effect on ST games. Most serious games programmers feel that even the fast Line-A routines are too slow to display scrolling landscapes, 3D graphics and the other effects that most games need. These programmers tend to write their own graphics routines which bypass their Line-A equivalents.

This means that games such as Starblaster will not be affected by the better Programs which will be affected include word processors and spreadsheets which will show a marked increase in their screen display and scrolling speeds, making everything appear much smoother.

■ **Quintus Hindmarsh** was recently surprised to find that he had to upgrade his very early ST's GEM chip when he wanted to use a colour monitor and he asks if there are any other chip upgrades which owners of early STs should know about. I've had similar problems because my own 520ST was made in June 1985.

Most of the chips, including the keyboard, memory controller, disk and video adapter chips in early STs, are version 1. After several upgrades most of these now have version numbers in the low 40s.

But there is no need to upgrade unless you

encounter a problem when you add a new component to your system. For example, if you upgrade your 520ST to 1MB you will probably have to buy a new memory controller chip.

The cost of upgrading any particular chip will be approximately £25 – the extra hidden cost of buying new technology early.

But while Alan might tend to bring out hardware before it is absolutely ready, it does at least make upgrades available.

Consider the Commodore Amiga, whose operating system has to be loaded from disc every time the machine is turned on.

Newer models have the OS on a chip, but Commodore has stated that it won't be bringing out chips for the older Amigas and have therefore decided to stick with the disc operating system for good.

■ **Clément Laro** from Chislehurst is having problems using his Epson LX-80 printer and sheet feeder with his Word. The program is printing one page of text and then feeding two more blank pages.

I've been in touch with GDT, the authors of 1st Word, and they tell me that the problem can be solved by placing a " in front of a line labelled Form Feed in the LX-80 installation file. ■

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EDWARD SHARK reports

As Atari's starry correspondent in the state of the Atlantic, I forced myself to fly to Las Vegas last month for the Winter Consumer Electronics Show.

CES is the traditional bazaar for the electronics and computer trades to unveil their new products or test reaction to new announcements. Many of these products don't make it to the market because of poor reaction at one of the CES shows.

My main reason for jetting to Las Vegas, other than to lose money at the casinos, was to see what Atari had been holding in the latter half of 1985.

As you've probably already read in the last issue of Atari Star, Atari announced three new major products at a press conference on the day before CES, at the Dunes Hotel. I attended it and was lucky enough to see the new Atari 800 clone, ST laser printer and Mega STs.

Except for slight differences in the keyboards, the Mega-STs and the SAM clones look identical at a mere very minor to the Amiga's. The Mega-STs were described by one journalist as being next to the so-called "ST configuration."

According to Atari, by the time you read this the company will have

required a new set of TOS roms for your ST, which will contain the extra code required to interface the two.

Presently the latter's version of TOS is loaded from disc on boot up in much the same way as with the original STs before removed TOS was available.

Arguments have been rife as to whether ST developers should receive a letter with TOS on disc so that they

could share release. I found out that contrary to common opinion, it's still very much a games company.

In 1984, 37 per cent of Atari's income came from the 8000-based home entertainment systems. Jack Tramiel inherited from the old Atari.

The 8000, 8000jr and 7000s systems have sold in excess of 20 and ten units worldwide. Although sales are now slowing, the 6100s system will have some life left in it and Atari is using the revenue to fund ST development.

The sales of Amigas and STs have grown considerably recently, because of the Apple IIGS. Apple is advertising the IGS very heavily but has little or no stock in the shops to sell.

Apple dealers have been trying to steer people to the Macintosh side of their showrooms, but the high prices have put many off.

Having had their appetites whetted for 16-bit technology, these people are flocking to Commodore and Atari.



dealers for demonstrations and eventual purchases. This situation is likely to go on for at least a couple of months while Apple increases production of the IGS.

Supra Corporation's 3.5in 20MB hard disc for the ST has been selling up to three times faster than its Atari rival, despite its slightly higher price. Having seen the Supra drive, I'm not surprised.

Atari's 8200A hard disc, roughly the same size as the 820ST, but about three inches high, sports a loud and strong fan. Supra's drive on the other hand is only slightly larger than an Atari 3.5in floppy drive and has a whisper quiet fan.



can start writing new software straightaway, or wait for the new TOS to be available in print.

The problems really hot up when you take into account that Atari is also working on a new debugged version of the TOS roms which will not support the latter. This will lead to three being three types of TOS - normal, latter supporting and debugged.

The developers have urged Atari to release the latter part of TOS as a program which will consume about 25K of ram and will test at boot up.

This will mean that both normal and the new debugged TOS will be able to support the latter. Hopefully Atari will take the sensible path - wait just how to wait and see.

Atari has been advertising the "1000E on television recently as the "ultimate games machine". This is a pity, because the 1000E at Atari line, with its huge range of productivity and utility software, is not finished yet.

Hopefully customers will realise this when they have demonstrations at their local dealer's showrooms.

Reading carefully through the press picture that accompanied Atari's



started shipping the first Mega-STs, but I suspect at least some delay because of the latter chip.

This, fixed as standard in the Mega-STs, is running behind schedule date of March and isn't likely to be ready before late April. Atari could start shipping the Mega-STs before then and the latter could be fitted later, but this is unlikely.

The delays plaguing the latter are due mainly to TOS, the ST's operating system. Fitting the latter will also

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COMPARISONS

BASIC	ROM MICROBASIC	YAB
IBM PC		16-9
BBC B		14-6
MAC BASIC		7-1
ST BASIC		9-2
FAST BASIC		1-8

(Continued)

BASIC

1000

to the government, particularly regarding the use of the Internet. The use of the Internet for the dissemination of information is a double-edged sword. On the one hand, it can be used to spread false information and to incite violence. On the other hand, it can be used to spread the truth and to promote peace. The government must therefore take steps to ensure that the Internet is used in a responsible and lawful manner. This can be done by promoting digital literacy and by ensuring that the Internet is accessible to all. The government must also take steps to protect the privacy and security of its citizens. This can be done by ensuring that the Internet is secure and by protecting the rights of its citizens. The government must also take steps to promote the use of the Internet for the benefit of its citizens. This can be done by promoting the use of the Internet for education and for business. The government must also take steps to ensure that the Internet is used in a responsible and lawful manner. This can be done by promoting digital literacy and by ensuring that the Internet is accessible to all. The government must also take steps to protect the privacy and security of its citizens. This can be done by ensuring that the Internet is secure and by protecting the rights of its citizens. The government must also take steps to promote the use of the Internet for the benefit of its citizens. This can be done by promoting the use of the Internet for education and for business.

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Partnership with some engineering firms and the use of their CAD/CAM systems is still a long way from being a widespread practice.

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2000

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There are three things that are important considerations for the first round of the 2000 election. First, the only thing that is more important than the election itself is the process of the election. Second, the only thing that is more important than the election itself is the process of the election. Third, the only thing that is more important than the election itself is the process of the election.

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11. *Journal of the American Medical Association*, 277, 1996, 1033-1037.

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WEST HAVEN, Connecticut, has been around the computer for a long time. One of its HAVEN programs has been written with the computer mind in view for some 10 years and is still in use. It is called *CONTO* (CONtents TOlogy). This other, not so general, *CONTO* is designed to help people identify a book on its own and to help someone use the HAVEN program as if it were a general *CONTO* program. This computer program, says one of its many users, the university's director of research, "is always there. After all, it's a computer. It will never go away. It's always there to be used."

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Revised: The original
 version
 (1998) is still in use.



Water supplies were used



Country	Year	Value
China	2000	1.00
China	2001	1.00
China	2002	1.00
China	2003	1.00
China	2004	1.00
China	2005	1.00
China	2006	1.00
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Chaos reigns, the life-sustained crew and potential colonists are in mortal danger and the ship is plunging out of control towards Eden. Can

Kim save the day?

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Each of the original adventures has been subjected to a thorough rewrite, changing the overall style yet, thankfully, leaving the old faithful to the original classics.



you can peek under a particular tile. Other options include taking back moves, revealing all moves and help with the rules and strategy. There is a charming animated title screen – a dragon, what else! – and the tiles are impressively depicted.

There is no need to speak of, just warming tapes. This is a shame, as some English music would have been more than appropriate. You really need a monitor to play this game to avoid eye strain – and a microphone one would be even better.

If you want a fan of Japanese games before the next look over your life, I can recommend Shunghai. Unlike card games, it gains

credibility from being computerised. Much as I'd like a set of every Mahjong tiles, I'm sure I'd never be bothered to lay them out in the required pattern.

Shunghai is a neat idea, nicely executed, and if you didn't get it soon early you would easily get hooked on it.

Bob Chappell

Sound	.....	5
Graphics	.....	7
Playability	.....	8
Value for money	.....	8
Overall	.....	8

Doing your own pin thing

Program: The Pinball Factory
Price: £29.95
Supplier: Microdeal PO Box 66 St Austell Cornwall
 PL12 4TB
 Tel: 0074 88669

WHETHER or not you're a pinball wizard and sure play a mean pinball, this game and construction set – for that's what The Pinball Factory is – should provide you with plenty of interest and entertainment.

The main menu screen shows a sample pinball table occupying the left half of the display and the option list to the right. You may load, play, save, delete, build or edit a game, or let the files on disc.

Once in the main edit mode the player may select to create a new board or logo or modify an existing one (the logo is equivalent to the vertical backboard on a pinball machine and occupies the right half of the screen during play).

Items available during creating and editing are an RGB colour and 16 colours – each colour can be any of 255 variations – 10 brushes, a variety of

patterns and commands to fill areas and draw lines, rays, frames, circles, boxes and discs. High resolution can be used for fine detail work.

A wide selection of bumpers are available for filling on the board. Click on the chosen bumper and then click anywhere on the board to fix it in position. Playability and movement is also simply achieved. Up to 200 bumpers can be located on the board, but will there still be room for the ball, ask?

Additional items available for creating and editing a logo are small and large new characters, shadows, and air brushes.

While still in the edit mode you can play around with the laws governing behaviour of the board. You may alter gravity, elasticity, speed, number of balls per game, how often a player receives an extra ball, the value, strength of certain bumpers, and turn the 'danger' on or off (this affects your ability to retrieve a ball from the out of play area below the flippers).

And while you're experimenting with the rules, you can always play an uncoloured test game to test the table.

Once your screen has been turned into reality you can save it to disc for posterity and then play it over and over to your heart's content. The ball releases upon launch or release by pressing the up or down arrow keys, the spacebar releases the ball and the Tab and Delete keys (or the mouse buttons) work the left and right flippers.

Up to four players can take part, and thanks even a 16 facility for those who like that hole in of edited realism. The game screen completely switches to play board and logo.

All good fun and offering much to while away a wet weekend! Whether you're game for a bit of furious flapping, bumping and tilting or prefer the gentler, more relaxing task of creating your own pinball masterpiece, The Pinball Factory should fit the bill nicely.

Douglas Wenden

Sound	7
Graphics	9
Playability	10
Value for money	8
Overall	9



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HOW YOU'VE



5

LINERS

If you've written any useful or interesting free-line programs in either Atari Basic, Fast Basic or Logo, why not send them in to our free-line section for NT readers?

[illegible]

Simply send a copy to them along with a clear listing and good explanation of why.

SE Five Rivers, Attn: Mary,
Europe House, 88 Charter Road,
Mass. Coast, Southport 01930

This exceptionally clever and compact driver creates a dictation program which turns the ST's words verbatim off.

Normally, the ST saves a file and then reads it back in to verify that it was stored correctly. If the verify flag is off, the ST doesn't read the data back in and therefore saves files at twice the normal speed.

You should only use the pro-

gram with discs and disc drives
which you know to be working
correctly.

U. Gross | **M. Hübner**

- 1 Opens the program file and starts the loop.
- 2 Reads in the data, places it on to disc then closes the file.
- 3-5 The machine code program data.

**WRITE VERIFY
OFF**

from
VILAY SISODIYA

[illegible]

PRINTER CONFIGURE

from
ADAM KENNEDY

If you want to write programs which dump screens to Epson printers, you will have found that using the Porter Configuration desk accessory can take up precious memory.

This 5' drive, which quickly and simply defines the data format to 500, can be included in any of your Basic programs.

1. *Journal of the American Medical Association*, 1997; 278: 1019-1024.

- ```

10 The program's data
20 Sets up the variables
30 Reads the data into a[]
40 Obtains the start address of
 the a[] array
50 Executes the machine code
 and dumps a test array

```

```

18 data = 0x3f3c,0x0000,0x3f3c,0x0001,0x4e4e,0x0000,0x4e4e
20 dim a2[16] as u8
22 for i=0 to 16 step 2
24 a2[i] = data[i]
26 call output2242.0

```



# Graphics tools for the experts

**ART Director** and **Film Director**, two powerful and concise graphic packages created by Andromeda for Microsoft, are designed with the serious graphics artist in mind.

Taking a look at **Art Director** first, the adverb claims: "Whether you want to create simple designs or complex professional presentations, **Art Director** has everything you need and more. This promise is kept."

**Art Director**, while lacking the simplicity and ease of **Neochrome**, packs in an incredible array of drawing tools.

Upon launching the program, the **Toolbox** appears. Containing the equivalent of the most frequently used functions, it can be conveniently removed or placed anywhere on the screen. Possessing most of the functions of **Neochrome**, the **Toolbox** offers many of the possibilities that **Neochrome** introduced and takes them a step further.

The **Zoom** function allows 16 different magnifications up to an extreme closeup of 12 by 30 pixels. The small zoom window on the **Toolbox** appears to be similar to **Neochrome's** until you choose to have the magnified portion of the work fill the entire screen. For detailed point-by-point work this function proves indispensable.

The **Cut Rectangle** feature allows you to cut any portion of your picture and rotate or reposition it anywhere on the screen to either the foreground or background.

Using one of the sample pictures on the program disc, of the **Venus De Milo**, I was able to cut out her left eye and paste on the screen with the pattern of her eye. With a little imagination the feature may be used to produce extraordinary and unique graphics.

**Art Director's** **Pattern** function operates similarly to the one in **Neochrome**, allowing you to fill an entire area in a selected colour or design. Using this function I was able to create entire backgrounds with the repeated pattern of **Venus's** eye.

Using **Font**, text can be produced in any colour, size, and in a variety of different types. After text is entered the mouse is used to drag it to any location on the screen.

The **Airbrush** operates like one used by a graphic artist, allowing accurate control of the speed, size of the brush, and duration. The longer you operate it over one spot the more pixels are coloured. It even allows you to use the cut rectangle pattern as one of the airbrush's sizes, as does **Art Director's** regular **Paint Brush** function.

The **Draw** feature permits single point dabbing, useful for touching up areas drawn with the **Paint Brush** and the **ink Pen**.

There is a handy **Erase** to clean up selected areas of your pictures, as well as a convenient **Clear Screen** option to allow you to start again from scratch. Most commands, including **Draw** and **Clear Screen**, can be taken back by simply

pressing the **Undo** key.

It is hard to believe that there are even more functions packed into the **Toolbox**. There's the **Sweep Page** function (which allows one to work on two pictures at the same time), **Vertical** and **Multi Directional Striding** and the **Paint Box**.

With **Art Director's** **Paint Box** you can create eight different colour palettes with any combination of the 167 colours available.

The only apparent fault of the **Toolbox** is the clumsy way used to switch from one function to another.

The **Main Menu's** file window features **Load**, **Save**, **Delete**, **Quit**, and **Format** too, you don't have to leave the program to format discs.

The **Basic Window** allows you to copy pages as well as providing options for defining **Grid** and **Window**, two functions to aid you in creating precise and accurate designs. And, for an accurate vanishing point or horizon, you can put in **Perspective** to work.

For those who miss the advantages of a photographic camera, you can choose a section of your masterpiece and selectively crop and blow up any area to fill the whole screen.

Using the **Venus** picture I was able to eliminate her shoulders and the background and have her face fill the entire screen.

While still in the **Basic Window**, you can cycle colours to create a moving animation effect, as in **Neochrome**, and also quickly create rotating circular or oval spirals. Using the spiral facility I was able to cut out **Venus's** legs and have them revolve and bounce about the screen like a rubber ball.

Next to the **Paint Menu** is the **Modify** **Background** which allow you complete freedom in the handling of your pre-defined brush.

You can use the **Blend** option to aid in creating straighter lines. Make the brush into a silhouette flip it, cut it in half, double its size, turn or even rotate it.

**Elliott Stein reviews Art Director and Film Director, two programs primarily aimed at the artistically talented**



Animation - simple with **Art Director**



Leaving the main menu to venture into the advanced menu, a set of windows will first appear across the window which allows you advanced control in designing your layout. Besides re-designing former frames by distorting, stretching and bending horizontally or vertically you can on produce circles, rectangles, squares, spirals and swirls, either filled or clear.

The Tool Menu presents you with functions to use when delicately isolating and adding fine touches to your graphics. Use Glines, Gshape or Move to join or overlap objects on screen.

One of the other options, Outline, allows you to place a one pixel wide outline around your entire picture to create the illusion of backlighting.

The Lines Window offers the drawing of straight or zig-zag lines, rays, horizontal line segments from a single point, rectangles, circles, ovals and polygons.

A separate utility program on the disc allows you to convert Art Director picture to Neochrome or Digas formats and vice versa.

Compared with Neochrome, Digas files and other similar graphics programs, Art Director comes out on top.

This versatile, well-documented, multi-purpose package will allow you to produce quality computer graphics on your ST with ease.

There are currently no programs available for the ST that can compare with Autodesk's second package. Film Director uniquely offers frame-by-frame animation in a simple format you get the best of it: fun and extremely rewarding use.

Though the animation is created from pictures produced from Art Director, Neochrome, Digas, or a video digitiser, Film Director is clearly a program on its own which takes full advantage of the mouse-operated Gerni desktop.

On booting Film Director a demo animation sequence is played. A boy walks, runs, rides a bicycle, bounces a ball and plays tennis against changing backgrounds.

You can use these graphics to practice editing all the elements that make up the animated boy: his arms, legs, torso, head (in sixteen angles), as well as the bicycle, tennis racket, ball and other picture segments are stored on two screens. You can select the individual elements which can be set, displayed, reflected, inverted, and enlarged. The chosen elements are then brought to the frame buffer, where you can construct, manipulate



FIGURE 1 Art Director (1 of 2)

and arrange the boy in any fashion desired. Click on Copy in the Toolbar and the first frame of your sequence is recorded.

Now continue to move the object across the screen. Press by point, separately move the arms, the legs, the head and continue using Copy to record the changes in screen position. You may also use the Group Editor to move several elements of the boy simultaneously.

You have just created a film sequence. Now choose the Show Film option to view your film. You can adjust the playback speed and run forward, backward, or stop bystep.

Now you can pick a pre-created background or create a simple background of arranged geometrical shapes using the Pattern Editor. Using Step allows you to set the boy precisely through the background.

You can add text to your picture, create other sequences up to 3000 frames long and add the sequences together, scroll through many backgrounds, use sound and music. Finally add individual frames as well as whole sequences, perform minor touch-ups to the graphic images and alter the colour.

For those who want to show their masterpieces outside their computer, your finished film can be transferred to a standard video recorder.

Like Art Director, Film Director will not create creative, unique and brilliant works of art by itself, it will only provide you with the tools needed for you to create them. Hard work, experiments and dedication are needed to use both programs to the full.

Both Art Director and Film Director are very worthy creations which will probably be used in the computer for all future graphic packages.

Product: Art Director

Price: £25.00

Product: Film Director

Price: £25.00

Supplier: Microsoft, Maxwell House, IT World

Street: London EC2A 2EP

Tel: 01 297 4006

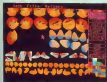


FIGURE 2 Film Director (2 of 2)

## ST SOFTWARE

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# Resourceful little gem



**Product:** *K-Resource*  
**Supplier:** *Kerns, Unit 11, Rotherham Park, Abingdon, Road, Fingbourne, Berkshire*  
**Tel:** 07607 4336  
**Price:** £39.95

If you have ever copied a Gem program from one disc to another, you may have found that you also have to copy the program's resource file. This contains the design for the menus, alerts and dialogs which the program uses when it is running.

Resources are loaded just after a program is run and are stored as a separate file so that the resource can be changed without altering or recompiling the program. This means that the program's version number can be easily changed, or the program can be converted to, say, French.

Resources can be constructed in two ways, by hand or with a construction program. A resource is made up of various trees of data — a tree can be a menu, alert or dialog.

The different trees contain objects such as text, buttons and icons, embedded in such a way that information as to the use of the tree when it is displayed and the coordinates of each object in that tree.

Building resources by hand is not only laborious, but is also virtually impossible for the novice programmer. A much simpler method is to use a construction program. Until now there have only been available as part of compiler packages, such as Megamax's C.

K-Resources from Kerns is the first resource

editor which has been made available on its own. It can build resources for use with anything from C through Modula 2 to Fortran 77. With some work, these resources can also be used with programs written in Fast Basic.

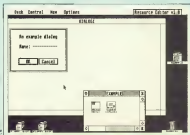
Constructing and adding resources with K-Resource couldn't be easier. The program is fully Gem supporting and just about everything is can be done using the mouse. Construction a dialog, for example, is merely a matter of clicking it using the mouse. Objects such as editable text fields, strings, buttons, icons and images are chosen and placed with the mouse.

If you were using one of the other resource editors you would have to return to the desktop and run your program to see what each of your trees looked like, then return to the editor for further editing.

K-Resource saves you all of that with its test option, which allows you to see what menus and dialogs will look like. You are also saved the bother of using a separate icon editor program, since K-Resource has this feature built in.

K-Resource's 32 page manual is up to Kerns' usual standards. Each menu option is examined and a detailed example shows how to construct a dialog. A section at the back tells you how to convert your resources files if you have been using other resource editors.

Kerns has the habit of releasing second versions of its programs — K-Spread was improved and became K-Spread II. I can't see how K-Resource can be improved though and it definitely gets my vote for the serious programming utility of 1987.



K-Resource in action

**Reviewed  
by Andrew  
Ralston**



either Gsm menu or one of nine icons displayed in a column on the left of the screen. These are still visible when the communications window is opened but can be covered by raising and moving the window or clicking on the ruler.

The manual is clear and doesn't assume an experienced reader. Many of the facilities in Fastcom are easier to use than K-Comm, particularly the selection of differing setups for different services. However, some detailed options are omitted, such as the relationship between carriage and line feed characters.

Facilities are provided for both Ascl and Xmodem up and downloads. The Xmodem option is provided with a more informative display than K-Comm to allow the monitoring of progress. The Fastcom Xmodem facility has not yet started a transfer for me, whereas K-Comm has given up several times on earlier lines.

One significant advantage of Fastcom is an online editor facility which allows the editing of text files for transmission, and includes search and replace capabilities.

Fastcom does not provide full terminal emulation for either VT52 or VT100 and does not define the keypad to send special codes. It does allow four of the function keys to be defined as text strings for rapid entry of often repeated commands.

One operational problem I have encountered with Fastcom is in the mechanism of the Ascl file download facility. Once the download option is selected there is no way to send anything to the host system to initiate the transfer, yet if the host is told to transmit before selecting the menu option then the initial few lines will be lost. However, this restriction is not disastrous as the normal capture buffer can be used to catch lost lines.

Fastcom seems to get into trouble with long transmissions at 1200/75 baud with the capture file recording on. It seems that the program cannot quite keep up and eventually the input buffer overflows causing a total lockup of the ST. This only occurs after several minutes of continuous transmission and can be avoided by occasionally using the hold-as-wait option to let it catch up.

An interesting feature of Fastcom is that it can handle raw combinations of transmit and receive baud rates rather than just 1200/75 or 750/100 as provided with K-Comm II.

Fastcom's window mode allows access to Hostal with its colour character graphics. It begins with a monochrome soft display using only part of the screen—the remainder is filled by buttons and icons which allow easy access to common Hostal options and an on-screen numeric keypad. The right mouse button toggles between this and a full screen colour display. Fastcom also has a noticeably faster screen update for window screens than K-Comm II.

Overall Fastcom provides some useful features which are not included in K-View. These may be regarded as unnecessary frills by some users and both packages provide all of the necessary basic functions. Fastcom allows both window and text modes to be used in the one program.

If Fastcom had a full 60 column display it would be a winner—I found it seemed just a little nearer

to use than K-Comm II. However, K-Comm does offer some extra facilities not included in Fastcom.

**PC INTERCOMM** is a package from Mark of the Unicorn which has been converted for the ST from a very successful product on the IBM PC. It is primarily sold as a terminal emulator for DEC VT100 terminals (an extended version of the VT100).

However, it includes some features not found on a standard terminal which make it particularly suitable as a communications package to a remote computer. These include file transfer, log file and modem control capabilities.

PC InterComm makes no use at all of Gsm graphics and is a purely text based product. The ST has one more screen line than the VT100 standard and PC InterComm uses this to display a status line at the bottom of the screen.

All configuration options can be accessed through the ST Help key which displays a text menu of items, many of which call up more detailed sub-menus—easy to use and readily self-explanatory.

In addition a small set of often used functions is available through the Alternate key in combination with a character key. The ST function keys can each be defined to send a character string and therefore can be used for frequently used commands.

File transfer modes available with PC



PC InterComm main screen

| Features               | Fastcom | K-Comm II | PC-InterComm | Hostal |
|------------------------|---------|-----------|--------------|--------|
| Full 80 column visible | No      | Yes       | Yes          | Yes    |
| VT52 emulation         | No      | Yes       | Yes          | Yes    |
| VT100 emulation        | No      | Yes       | Yes (VT100)  | Yes    |
| 1000/75 baud           | Yes     | Yes       | No           | No     |
| Other split rates      | Yes     | No        | No           | No     |
| Term colour            | Yes     | No        | No           | No     |
| Auto dial intelligent  | Yes     | Yes       | Yes          | Yes    |
| Auto dial pulse        | No      | Yes       | No           | No     |
| Session log to disk    | Yes     | Yes       | Yes          | Yes    |
| Session log to printer | Yes     | Yes       | Yes          | Yes    |
| Ascl file transfer     | Yes     | Yes       | Yes          | Yes    |
| Xmodem file transfer   | Yes     | Yes       | Yes          | Yes    |
| User defined keys      | 4       | 10        | 20           | 20     |
| Window mode            | Yes     | Yes       | No           | No     |
| Walltext (Compressed)  | No      | No        | No           | Yes    |



*Passes a private packet*

InterComm include the Acorn and Xmodem protocols provided with the other two packages. It also supports a protocol known as Kermit which is very common on DEC and IBM computers.

An extra mode is provided for transferring files to and from another ST which is also running PC-InterComm. This allows some of the file details such as exact length and creation date to be preserved. One useful facility provided in the file transfer options is to specify the commands to send to the host to pause the file transfer to begin

and terminate.

A history buffer is automatically kept by PC-InterComm which stores all text sent by the host computer. This history can be reviewed on the screen or saved to disk manually or automatically. In addition it is possible to save the current screen to a disk file.

All options selected on PC-InterComm can be saved in a set up file which can then be loaded each time a particular service is used. As with R-Comm's VT100 emulation, PC-InterComm does not support the DEC L30 column screen mode which seems an unfortunate omission for a product billed as a terminal emulator.

It does support double width and double height characters which are created from the R-Comm emulator. No split baud rates are supported, so 1200/75 operation is only possible with a speed buffering modem.

The small, ring bound manual is well-written and does include a chapter for beginners.

PC-InterComm does offer a few unique features in addition to those provided by other packages; particularly the Kermit file transfer, and it does have a fairly professional feel in operation. It is, however, still over twice as expensive, which will probably make the private individual that considers about the need for the few additional features supported.

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